

Russia's energy sector between politics and business

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Empfohlene Zitierung / Suggested Citation:

Orttung, R., Perovic, J., Pleines, H., & Schröder, H.-H. (Eds.). (2008). *Russia's energy sector between politics and business* (Arbeitspapiere und Materialien / Forschungsstelle Osteuropa an der Universität Bremen, 92). Bremen: Forschungsstelle Osteuropa an der Universität Bremen. <https://nbn-resolving.org/urn:nbn:de:0168-ssoar-436953>

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Forschungsstelle Osteuropa Bremen
Arbeitspapiere und Materialien

No. 92 — February 2008

Russia's Energy Sector between Politics and Business

Edited by

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Arbeitspapiere und Materialien – Forschungsstelle Osteuropa, Bremen

Working Papers of the Research Centre for East European Studies, Bremen

No. 92: Robert Orttung, Jeronim Perovic, Heiko Pleines, Hans-Henning Schröder (eds.):

Russia's Energy Sector between Politics and Business

February 2008

ISSN: 1616-7384

All contributions in this Working Paper are reprints from the Russian Analytical Digest.

About the Russian Analytical Digest:

The Russian Analytical Digest is a bi-weekly internet publication which is jointly produced by the Research Centre for East European Studies [Forschungsstelle Osteuropa] at the University of Bremen (www.forschungsstelle.uni-bremen.de) and the Center for Security Studies (CSS) at the Swiss Federal Institute of Technology Zurich (ETH Zurich) (www.css.ethz.ch). It is supported by the Otto-Wolff-Foundation and the German Association for East European Studies (DGO). The Digest draws from contributions to the German-language Russlandanalysen, the CSS analytical network Russian and Eurasian Security Network (RES) and the Russian Regional Report.

For a free subscription and for back issues please visit the Russian Analytical Digest website at www.res.ethz.ch/analysis/rad

Technical editing: Matthias Neumann

Cover based on a work of art by Nicholas Bodde

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<p>Forschungsstelle Osteuropa Publikationsreferat / Publications Dept. Klagenfurter Str. 3 D-28359 Bremen – Germany phone: +49 421 218-3687 fax: +49 421 218-3269 e-mail: publikationsreferat@osteuropa.uni-bremen.de internet: http://www.forschungsstelle.uni-bremen.de</p>

Contents

Introduction

Jeronim Perovic and Robert Orttung

Russia's Energy Policy: Should Europe Worry?	7
Russian Oil and Gas Production.....	13
Russia's Oil and Gas Industry in an International Context	21

Part I: Russia's Energy Policy: Economic Challenges and Political Strategies

Daniel Simmons and Isabel Murray

Russian Gas: Will There Be Enough Investment?	27
---	----

Julia Kuszniir and Heiko Pleines

The Russian Oil Industry between Foreign Investment and Domestic Interests	31
FDI and State Ownership in the Oil and Gas Industry.....	34

Susanne Wengle

Power Politics: Electricity Sector Reforms in Post-Soviet Russia.....	36
Attitudes of the Russian Public towards the Privatization of UES.....	41

Part II: Russia's New Energy Frontiers

Indra Øverland

Shtokman and Russia's Arctic Petroleum Frontier	45
---	----

Nina Poussenkova

All Quiet on the Eastern Front... ..	50
--------------------------------------	----

Elana Wilson Rowe

Regional Influence in Oil and Gas Development: A Case Study of Sakhalin	56
---	----

Part III: Energy and Foreign Policy

Jeronim Perovic

Russian Energy Power Abroad	63
-----------------------------------	----

Andreas Heinrich

Gazprom's Expansion Strategy in Europe and the Liberalization of EU Energy Markets....	67
Gazprom Joint Ventures, EU Gas Imports.....	71

Matteo Fachinotti

Will Russia Create a Gas Cartel?	75
--	----

Yoshinori Takeda

Russia's New Political Leadership and its Implication for East Siberian Development and Energy Cooperation with North East Asian States	79
---	----

Part IV: Ecological Challenges

Roland Götz

Russia and Global Warming – Implications for the Energy Industry	85
--	----

Petra Opitz

Energy Savings in Russia – Political Challenges and Economic Potential	89
Russian CO ₂ Emissions and Energy Consumption in International Perspective	92

Recent English-Language Publications of the Research Centre for East European Studies	97
English-Language Newsletters of the Research Centre for East European Studies	98

Introduction

Russia's Energy Policy: Should Europe Worry?*

By Jeronim Perovic, Zurich, and Robert Ortung, Washington

Abstract

East-West relations are deteriorating to a level not seen since the Soviet period. Recent cover stories on Russia from *The Economist* (December 16, 2006) and *Der Spiegel* (March 5, 2007) present President Vladimir Putin as a gangster with a gasoline pump and a Soviet Commissar wielding Gazprom's massive pipeline network. These images illustrate a growing fear in the West that Russia is a threat. Russia, according to this point of view, is using energy as a weapon to rebuild its empire. This article examines to what extent Europe, which is heavily dependent on Russian oil and natural gas supplies, should worry.

Real and Perceived Threats

What the European consumer of Russian gas and oil worries about is mainly what he or she decides to worry about. A major turning point in Europe's perception followed the Russia-Ukraine gas dispute in January 2006: Many European governments and large parts of the media decided that the short-lived shutdown of Russian gas deliveries to Ukraine were something to worry about. Moscow had a different perception at the time: it simply could not understand why Europe sided with Ukraine in a conflict where, in Moscow's view, the issue was Ukrainian theft of Russian gas and living on Russian subsidies.

First, what Moscow failed to grasp was how the Europeans would interpret the way Russia treated its neighbor. From the European perspective, abruptly closing the pipe was not an appropriate means of resolving price disputes. The Europeans complained that they always paid their bills on time, so they could not fathom why the Russians would resort to such an extreme measure without prior consultation of its European customers.

Second, and more importantly, Russia's assertive move against Ukraine came at a bad time. The overall political context at the beginning of 2006 was charged negatively against Russia. These general atmospherics had less to do with Russia's energy behavior than with the West's image of Russia as an increasingly authoritarian and anti-democratic power. Only against this larger background is it possible to understand why the shutdown of gas deliveries, which, after all, lasted only 24 hours, had such a tremendous psychological impact. Never mind that the Soviet Union/Russia had been a reliable supplier for the past 30 years, the question for Europe ultimately is whether it wants to partner with this kind of Russia moving forward.

Russia's problems with its transit country neighbors are a cause of concern for the near-term – a recent case in point is the dispute over oil and gas prices between Russia and Belarus, which led to a three-day stoppage in Russian oil deliveries in January 2007. This issue will be much less important in the middle to long term. Russia's dependency on transit countries will decrease with the construction of new pipeline routes. Recent examples are the North European Gas Pipeline linking Russia directly to Germany through the Baltic Sea, the planned expansion of the Baltic Pipeline System (BPS) with the construction of a new oil pipeline to Primorsk circumventing Belarus, and the recently announced construction of an oil pipeline from Bulgaria's Black Sea port of Burgas to Alexandroupolis, in northern Greece. In mid-March 2007, Hungary decided to go ahead with the project to extend the Blue Stream gas pipeline from Turkey to Hungary. This project will lessen Russia's dependency on Ukraine and also undermine the EU favored Nabucco pipeline project, which is planned to carry Iranian and Caspian natural gas to Europe and runs along the same route as the Blue Stream extended pipeline. (See the corresponding oil and gas maps on p. 18 and 19.)

Also, even if Russia's price hikes will cause more friction in the years to come, bringing the CIS prices up to world levels are a healthy development. Although moving at different speeds, Russia has been raising prices for its adversaries (i.e. Georgia) and allies (i.e. Belarus) alike. In this context, what are the issues that Europe should be concerned about when it comes to Russia's energy policy?

* This is a slightly updated version of the text published originally in Russian Analytical Digest, no. 18, 3 April 2007, pp. 2–7.

Developments in Russia's Oil Sector

According to the most recent EU Commission figures, 27 percent of EU oil consumption is of Russian origin and 30 percent of EU oil imports are from Russia. About a quarter of this oil is transported directly to Europe via the "Druzhba"-pipeline through Belarus; the bulk of the oil is transported to various maritime ports and shipped further with tankers (see the corresponding map on p. 18). Given that Europe's own oil production is declining, Russian oil is and will remain critical for Europe. Recent developments in Russia's oil sector are, however, potentially bad news for the European customer.

Russia's oil sector is dominated by a handful of private oil companies. It is largely due to these companies that Russian petroleum output was able to recover during the 1990s and is doing reasonably well today. However, there has been a trend towards re-nationalization starting with the destruction of Yukos in 2003. As Figure 1 on p. 13 illustrates, state ownership has increased since 2003 and is likely to expand further.

It is still too early to understand what effect increasing state power will have on the Russian oil sector; however, the expansion of state ownership is unlikely to have a positive impact on production and growth. Moreover, the atmosphere created by this trend is certainly not attractive to foreign investors. To be sure, Russia gets more direct foreign investment than ever before, but not in new long-term energy projects where very large sums are required, and where investors need to have the security that they will not be pushed out of the projects once they become operational.

But since the oil market is a global market with a relatively small share of oil transported through pipelines, Europe has some room for maneuver. Should Russian production stagnate or decline or should Russia divert considerably more of its oil to the Asian market, Europe could theoretically turn to other suppliers. According to Russia's Energy Strategy to 2020, approved by President Putin in May 2003, Russia plans to export about a third its oil to Asia by the year 2020. Whether Russia will indeed manage to export substantially more of its oil (and gas) to Asia without diverting current supplies away from Europe depends largely on the development of new fields in East Siberia and the Far East – in addition to the production of the Sakhalin fields. As of today, however, Russia has invested very little in a region which is believed to contain some 13 percent of Russia's total oil reserves and 19 percent of its gas, but located in extremely harsh climate making production difficult and costly. Also, Russia still lacks major trunk oil (and gas) pipelines which would be capable of transporting large volumes of energy to the Asia-Pacific market.

Developments in Russia's Gas Sector

Gas is a different story for three reasons: First, natural gas is and will remain largely a pipeline market, despite the growing importance of liquefied natural gas (LNG), which can be transported by tanker ship. Second, the dependency of Europe on Russia is significant. Third, Europe's gas demand is expected to increase much more than its oil demand.

The share of Russian gas in the gas consumption of individual European countries is high (see the diagram of European countries' share of Russian gas consumption on p. 20). Overall, according to EU Commission figures, the Russian share in EU gas consumption is 24 percent, the share of gas imported from Russia is 44 percent. Most of the rest currently comes from Algeria.

If Europe's gas imports indeed increase by over a 100 percent by 2030, as International Energy Agency (IEA) projections suggest, then one thing is certain: Russia alone will not be able to meet this increasing demand even if the most optimistic scenarios about Russian gas production and export capabilities hold true. Russia will remain the single biggest supplier, but in relative terms, its importance will decline and Europe will have to look for alternative suppliers, including North African countries (notably Algeria), Iran and Qatar. According to the IEA and other estimates, Russia's share of European supply will drop from the current 70 percent to 35–40 percent of EU-30 imports by 2030.

Adding fuel to growing concerns about Europe's increasing dependency on gas imports were Putin's repeated statements in favor of the creation of a cartel of the world's leading gas exporting countries, including Russia, Qatar and Iran. Putin announced he would dispatch a team of experts to the Qatari capital, Doha, in April 2007 to further explore a possible gas alliance. Although most energy experts – including a number of senior Russian officials – consider the formation of a gas alliance a highly unrealistic idea, which in any case would not serve Russian economic interests, Putin's public announcements have stirred up even more uneasiness about Russia. (See analysis "Will Russia Create a Gas Cartel?" on p. 75.)

Russia's major gas fields are declining fast. Whether Russia manages to produce more gas and export more to Europe depends on four factors: the development of new fields, Russia's domestic energy market, Russia's independent gas producers, and the amount of gas from Central Asia.

Development of New Fields

The development of new gas fields is of paramount importance for Russia to achieve its target output levels (see Figure 2 on p. 14). Two issues are potentially worrisome, however:

A first concern is Gazprom's announcement that it intends to develop the new offshore fields, such as Shtokman or the Yamal fields, without foreign partners. Experts question whether Gazprom on its own is capable of developing these fields, which would be so important for Europe, but which are located in extremely difficult terrain and require up-to-date technology. Gazprom's desire to go it alone indicates a trend towards energy nationalism, which is defining the new reality. Russian law makes it impossible for foreigners to control large offshore fields. They can take part in the development projects, but they are not allowed a controlling share.

A second worry is that it is unclear when the new fields will start producing. Without massive foreign investment, Gazprom will simply not have the money to develop new fields and simultaneously take care of other urgent matters, in particular the modernization of its infrastructure. The investments in the Shtokman field alone are expected to amount to \$12–14 billion in the first stage of the project.

The production-oriented upstream sector makes up only a modest share of Gazprom's investments, according to the company's own figures (see Figure 3 on p. 14). At the same time, Gazprom has spent lots of money building additional export pipelines and buying up foreign assets in the downstream sector, especially distribution networks in European countries. What Gazprom obviously wants is to control the whole chain of supply: from production to transportation and distribution. Gazprom seeks to establish dependencies via the building of export pipelines and long-term contracts, and only later worries about actually filling the pipelines. Gazprom CEO Alexei Miller's motto is simple: gas will not be produced until it is sold.

The Domestic Energy Market

The single biggest challenge for Russia in the energy sphere will be the reform of the domestic energy sector. Russia's Energy Strategy estimates that as much as \$200 billion must be spent in the gas sector alone by 2020. The numbers for the other sectors are no less impressive, as Figure 4 on p. 15 demonstrates.

However, reform has not yet seriously started. In the gas sector, the trend is even going backwards: If during the 1990s, there was discussion of liberalizing the gas market and breaking up Gazprom, today Putin and his entourage are in favor of enlarging and empowering this company.

The philosophy behind this strategy can be illustrated with a quotation from President Putin's speech at a reception commemorating the 10th anniversary of the founding of Gazprom: "Gazprom, as a strategically important company, should be kept, and has been kept, as a single organism. (...) Gazprom is a powerful political and economic lever of influence over the rest of the world."

More likely at this point is a rise in domestic gas prices. Gas costs about \$52 per 1,000 cubic meters for Russia's domestic customers. Russian Economic Development and Trade Minister German Gref announced on March 2, 2007, that the price will increase to around \$100 by 2010. Whether this price increase will actually take place depends on the next Russian president. As long as gas is subsidized, it is simply not profitable to invest in the development of other energy sources.

Gas makes up the bulk of Russia's primary energy consumption (see Figure 5 on p. 15); in fact, in absolute volume, Russia uses more gas than any other country in the world. However, even if Russia replaces some gas consumption with nuclear or coal – a key ambition of Russia's current energy policy – domestic demand for gas is still expected to increase. This rising demand, of course, would leave less gas for export.

On top of all this, Russia intends to export more gas to Asia (see Figure 6 on p. 16). This shift in exports should not concern Europe as long as Russian gas is exported from new fields in East Siberia or the Far East, for example from the still to be developed Kovytkha gas field, which is one of the largest in Russia. The one project that Europe should worry about at the moment is the proposed Altai pipeline from West Siberia to China, which would eventually redirect gas flows from west to east. Although many analysts believe that this proj-

ect is too expensive to be realized, plans to build it clearly show that Russia is eager to diversify its oil and gas exports. The same way that Europe does not want to be too dependent on Russia, Russia does not want to be too dependent on Europe.

The Role of Independent Gas Producers

A key assumption in determining Russian production figures is that the share of gas produced by independent producers will increase. According to Russia's Energy Strategy, independent producers could produce up to 25 percent of Russia's total output by 2020 (with roughly half of the gas coming from non-Gazprom gas producers and half from oil companies). As Figure 7 on p. 16 shows, independent producers accounted for basically all the growth in the gas sector in recent years; Gazprom accounted for negative or zero growth. Allowing the independent producers to flourish would be good news. However, the question remains whether Gazprom and the Russian government will allow the independents such liberty. There are indications that Gazprom seeks to strengthen control over them.

A case in point is the situation surrounding the Kovytko project, which TNK-BP hopes to develop. TNK-BP is a 50-50 joint venture between BP and Renova Group, in which Russian oligarch Viktor Vekselberg is the dominant shareholder. TNK-BP owns a 62.4 percent stake in Rusia Petroleum, the operating company at Kovytko. Kovytko is currently the richest gas project in East Siberia, with the potential to develop into a springboard for the establishment of a unified gas supply system in the east of Russia. With annual production estimated at 40–45 billion cubic meters (bcm) per year, Kovytko could produce enough gas to satisfy 15–20 percent of the non-contracted gas demand of China and South Korea by 2020.

It is highly unlikely that Gazprom will allow Kovytko's gas to be exported unless it can gain a controlling share in this project. While the regional implementation of the project is underway, Gazprom has so far effectively stalled the international sales, which would include the construction of an export pipeline to China. Since the Russian government has assigned Gazprom as the official coordinator for the development of gas production in the Russian east, and given that only Gazprom has the right to own and operate gas export pipelines in Russia, the Kovytko project is entirely at the mercy of Gazprom. According to Vekselberg, "Gazprom's entry into the project is inevitable."

The situation around the Kovytko project resembles recent trends in the gas sector, particularly the case of the Sakhalin-2 oil and gas project, in which the Russian state forced foreign companies to hand over part of their stakes to Gazprom for \$7.45 billion on December 21, 2006. Sakhalin-2 was established in 1994 and was the only project in Russia that lacked Russian participation. In order to get the foreign partners to hand over their stakes, Moscow threatened them with the enforcement of the country's environmental legislation, alleging that project activities had violated it. Once the deal was complete, these environmental concerns disappeared.

Gas from Central Asia

Another key assumption is that Central Asian gas continues to flow north. It is much cheaper for Russia to buy up Central Asia's gas than invest in expensive fields in its north. Since all the major Central Asian gas pipelines go through Russia, it has so far been easy for Russia to "convince" the Central Asians to keep selling their gas to Russia. Gazprom currently purchases about 60 bcm a year from Central Asia, an amount which is significant but unlikely to increase any time soon, especially if Turkmenistan, which provides the bulk of these supplies, is not able to increase its production substantially. At the same time, it can be expected that Russia will be able to at least hold this level and not lose out to Western competitors.

The scale of Russian direct investment in the region is modest, particularly in comparison to the investment of other countries. Russian foreign direct investment in Kazakhstan, for example, amounted to only \$930.5 million (or 3.1 percent of total foreign direct investment) for the period between 1993 and September 2004. The three largest foreign investors, the US, Great Britain, and Italy, accounted for almost \$15 billion (50.73 percent). However, Russia has so far been very good at securing long term contracts on gas deliveries, and Russian companies have bought key pieces of energy infrastructure.

Turkmenistan's new president, Gurbanguly Berdimukhammedov, has confirmed the previous gas deal signed in 2003, which gives Russia an almost exclusive right to import gas from Turkmenistan at least until 2028. Under the deal, Turkmenistan sells Gazprom up to 60 bcm of gas in 2007, 60–70 bcm in 2008 and up to 80 bcm in each of the following years (in 2006, Gazprom imported 42 bcm of gas from Turkmenistan).

Since Turkmenistan's current output stands at about 60 bcm, it will have to increase production substantially to meet its contractual obligations. More importantly, should Turkmenistan indeed decide to stick to the partnership with Russia, none of the other interested parties (mainly China, the US and Europe) can hope for direct Turkmen gas deliveries in the foreseeable future.

Gazprom's relation with Turkmenistan is not, however, a one-way street. Gone are the times when Russia virtually blackmailed Turkmenistan to sell its gas for \$44 per thousand cubic meters, with only half in cash. In 2007, the price stood at \$100 and is expected to increase further. This jump clearly indicates the importance Gazprom attaches to Central Asian gas and also shows that Russia is ready to offer a (relatively) good price in order to outbid international competitors.

In the foreseeable future, the EU and the US cannot count on substantial amounts of other Caspian gas flowing directly westward. Only Azerbaijan will transport gas in this direction through the newly opened Baku-Tbilisi-Erzurum pipeline (also known as the South Caucasus Gas Pipeline). There is little hope that large amounts of Kazakh gas will fill the pipeline in the near future because a substantial part of Kazakhstan's additional gas production will be absorbed by its expanding petrochemical industry and Kazakhstan's largest gas fields are located in the north of the country near Russian borders and it is more convenient to transport gas via the existing transportation networks. Moreover, China is a serious competitor and might be able to draw some of Kazakhstan's gas export east through a projected pipeline that would follow the already existing oil pipeline.

Gazprom is trying to sign contracts for as much of Kazakhstan's gas as possible. For 2007, Gazprom managed to secure some 8 bcm of gas, which roughly equals Kazakhstan's total planned gas exports. Gazprom also bought 13 bcm of gas from Uzbekistan, which produces almost as much as Turkmenistan, but currently uses 80 percent for domestic consumption.

Dealing With a More Assertive Russia

Many of Europe's worries are the same worries that Russia has, if one reads Russia's Energy Strategy to 2020 closely. A major concern of the Energy Strategy is the lack of investment and the negative consequences for future production. However, one key difference is that Russia is not in the same hurry as Europe is. It is Russia, not Europe, which is currently sitting on the oil and gas reserves. For Russia, it is not vitally important if Shtokman starts producing in 10, 15 or 20 years. It can be almost certain that Shtokman gas will find a buyer.

The Russia that the West is dealing with today is a different Russia from two–three years ago, and definitely a more assertive Russia. Earnings from energy exports have played no small role: Income to Russia from oil exports grew dramatically from the transition from Yeltsin to Putin, from \$14 billion in 1999 to \$140 billion in July 2005–June 2006. As Figure 8 on p. 17 shows, not only has Russia over the past three years almost repaid its foreign debts to the Paris Club, it had also accumulated some \$89 billion in the stabilization fund by the end of 2006.

This new wealth marks a very significant development since it means that Russia feels it is no longer beholden to the West, and can pursue a more “independent” foreign policy line. This attitude is not only reflected in Putin's rhetoric over energy export diversification from Europe to Asia or the building of a gas cartel, but shows at the level of public diplomacy (e.g. Putin's speech at the Munich conference on February 2, 2007) or in Russia's announcement that it plans to increase military spending substantially, including the modernization of its nuclear forces.

What does this all mean for the West? For one thing, it should encourage the West to develop alternative sources of energy even more aggressively – the EU has already sent a clear signal with its decision on March 9, 2007, to commit the 27 member states to slash overall European greenhouse gas emissions by 20 percent and increase the share of renewable energy sources to 20 percent of energy consumption by 2020. Likewise, US President George Bush has announced plans to reduce gasoline usage by 20 percent over the next decade.

At the same time, the EU and the US should make it clear that these steps are not directed against Russia, but are for the benefit of the environment and sustainable economic development. Neither side gains from a further worsening of relations, and the West needs to be careful that relations with Russia do not result in an “energy security dilemma,” as recently described by Andrew Monaghan. Such a dilemma might occur when the two sides continue to feel insecure vis-à-vis each other and begin to make preparations in case the other intends to threaten it. These preparations create extra suspicion and provoke additional measures in order to

better prepare for an eventual threat. Translated into energy relations, such preparations would result in an intense race to diversify purchases and sales away from each other – despite the fact that because of existing mutual dependencies, neither Europe nor Russia desires this outcome.

As a matter of fact, the current negative political atmosphere and the anti-Russian hype in the Western media are not reflected at the level of economic cooperation with Russia. Gazprom negotiated contracts on long-term gas deliveries with a number of energy related companies, including most recently with Italy's Eni S.p.A. and Gaz de France (GdF). Negotiations and contractual agreements continue with a number of other European energy companies. These agreements, at least, do not indicate any major shifts in attitudes on either side.

Europe needs to formulate a common energy policy toward Russia stressing common interests and needs. This strategy should be based on a better understanding of what the real and perceived threats are. For example, Europe does not necessarily lose if Russia begins to export more gas to China even if the result is less than the expected increase in gas supplies for Europe. From an ecological point of view, Russian gas supplies to China would help the country reduce its dependence on extremely dirty coal. Greater natural gas use in China would help it cut its greenhouse gas emissions.

Likewise, Russian purchases of European energy assets – a development often portrayed negatively in Western media – in fact facilitate mutual interdependencies, rather than further diversification. However, the West should insist on reciprocity; that is, if Russian energy companies are allowed into the EU energy market, then EU companies should be allowed to enter the Russian market. Currently, Gazprom has sole ownership of Russian gas pipelines and Russia's state-owned company Transneft' holds the monopoly over the oil pipelines.

East-West Energy Cooperation Beyond High Politics

It is important that, besides intensifying their energy dialogue at the highest political levels, the West and Russia look for areas of cooperation in the less politicized – but no less important – areas of their larger energy relationship. Among the many options, the one area of cooperation that has been largely neglected is the promotion of greater energy efficiency through the entire chain of production, transportation and end use, as well as the development of renewable energy sources. These are largely unexplored areas of cooperation, which have, however, huge development potential and are economically attractive for both sides. Moreover, the promotion of energy efficiency and renewables is in line with global efforts to reduce carbon dioxide emissions.

Because gas prices are heavily subsidized and therefore very low for Russian domestic customers, Russia is one of the most inefficient countries in terms of the amount of energy it uses. In fact, Russia uses more than twice as much energy to produce a unit of GNP as the European Union, though it is making slow improvements. According to the Russian Ministry of Industry and Energy, Russia could save half of its current energy use. Since, as Western experience shows, enhancing energy efficiency requires not only an initial engagement on the part of the state both politically and financially, but also the introduction of innovative models and the latest technology, Western companies could contribute to the effort to reduce Russian energy use. Helping to boost Russian energy efficiency may be an effective way to improve relations, particularly as Russia has announced it plans to reduce its energy subsidies for domestic consumers, forcing them to pay something closer to market prices. The country members of the International Energy Agency have managed to prevent significant demand growth by implementing energy saving measures. Helping Russians reduce their energy demand would help make higher prices more palatable for the population and politically acceptable for policy makers.

Massive losses in the gas sector occur not least because a substantial amount of gas is burned during oil production. Although Russia claims that it burned off 15 bcm of gas in 2005, satellite pictures suggest that as much as 60 bcm was flared. The amount of these flares is increasing as oil production increases. Additional gas supplies are lost in transit because of Russia's aging pipeline system. According to Gazprom, investments in the gas transmission system could lead to annual gas savings of up to 10 bcm. The one area with the greatest potential for energy savings is the system of district heating for residences. Now much of the energy devoted to heating Russian homes is wasted because the heat is centrally produced and then transported, with significant losses along the way. Huge losses also occur in the electricity sector. Introducing more efficient methods will be costly, but it is time to think about how these measures can be adopted, and how the West could assist – not least in order to reduce the associated environmental problems and increase Russian gas supplies.

Finally, joint efforts should include the development of alternative sources of energy. Russia currently gets only about 3.5 percent of its energy supply from renewable sources, including its numerous hydro-electric dams.

Russia's Energy Strategy to 2020 suggests that as much as 30 percent of the country's energy needs could be met using alternative sources, if these were developed to their full potential. Joint Russian-Western research on such sources of energy could lead to the development of new technologies that would be extremely valuable on the global market place as energy prices continue to rise, benefiting both Russian and Western partners.

While there has been considerable tension in Russia's relations with the West, there is also some potential for improving these relations. Efforts in the energy sector may prove helpful in this regard.

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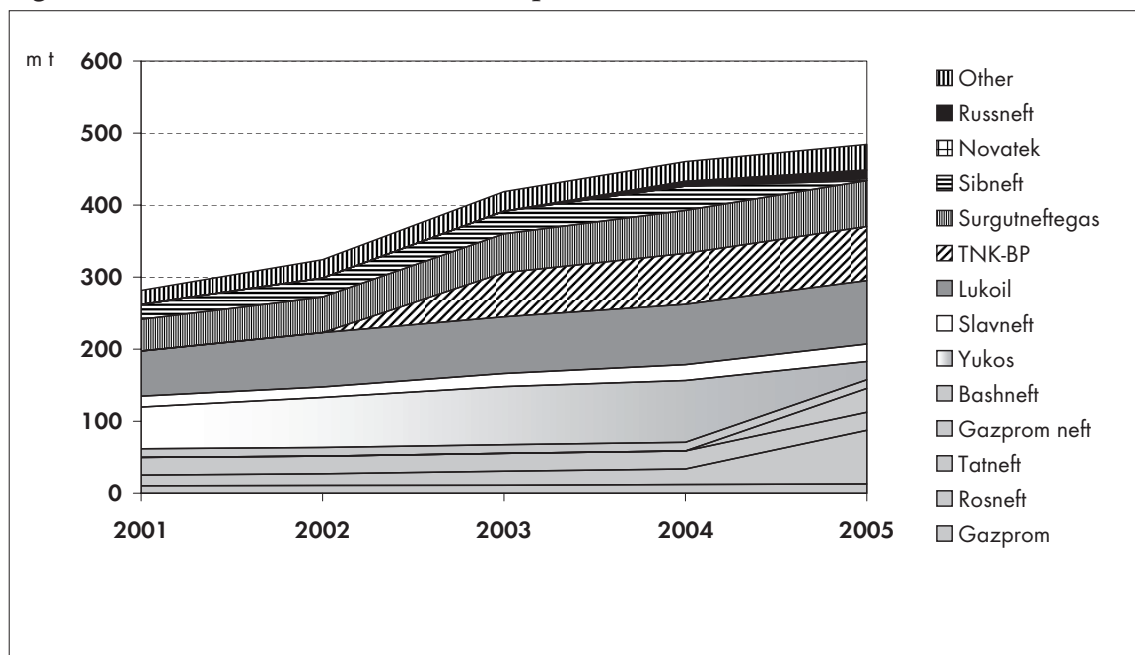
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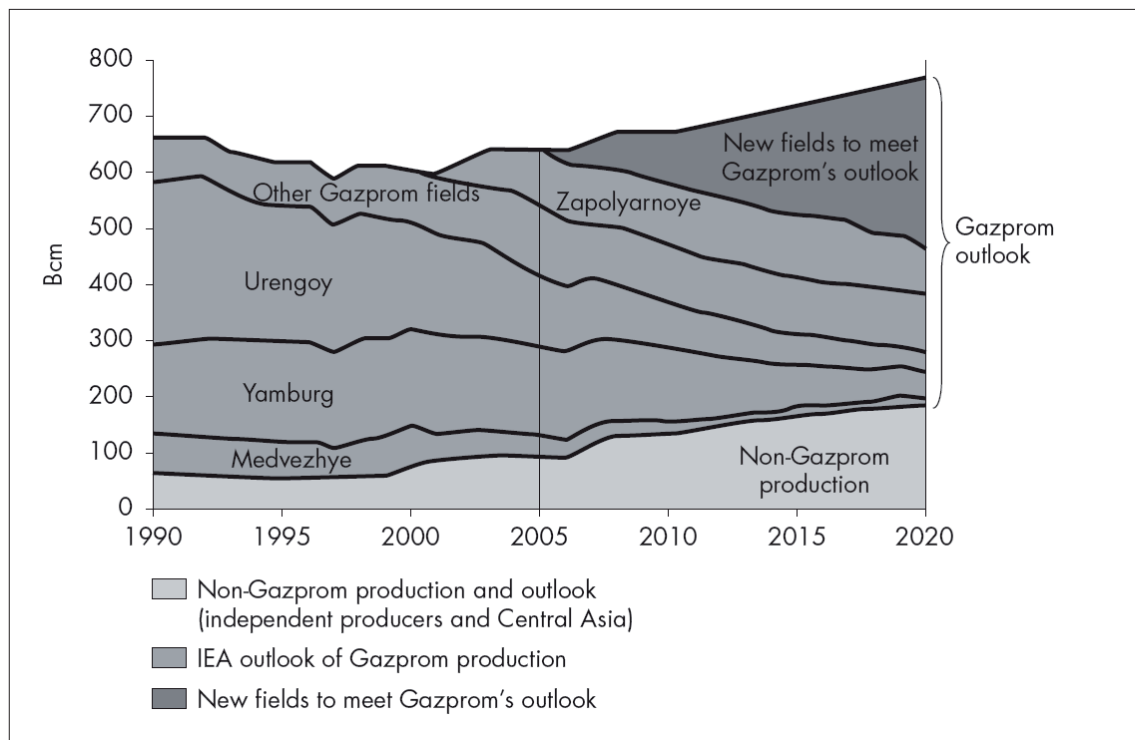
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Russian Oil and Gas Production

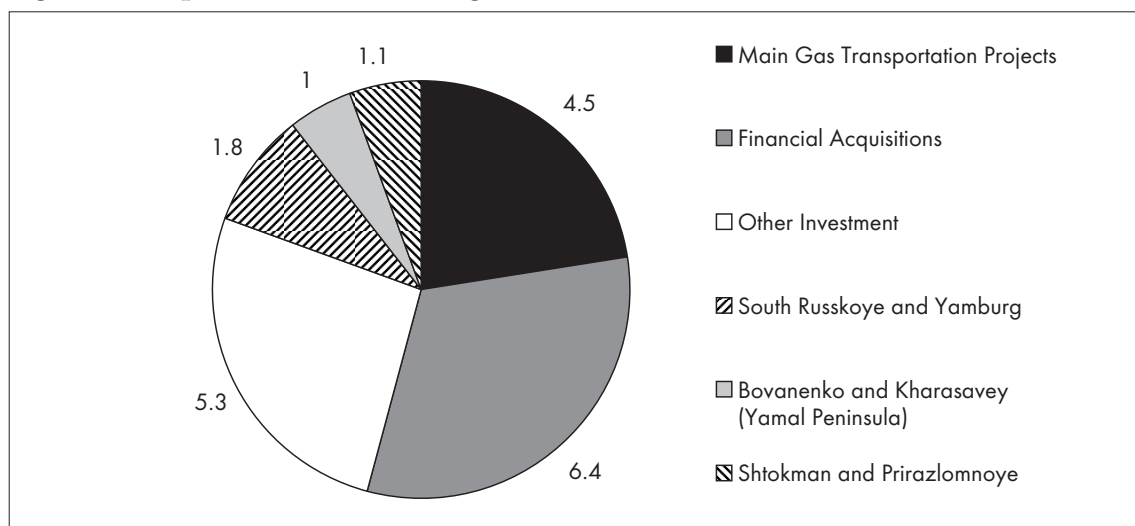
Figure 1: Oil Production of Russian Companies, 2001–05



Source: oilcapital.ru

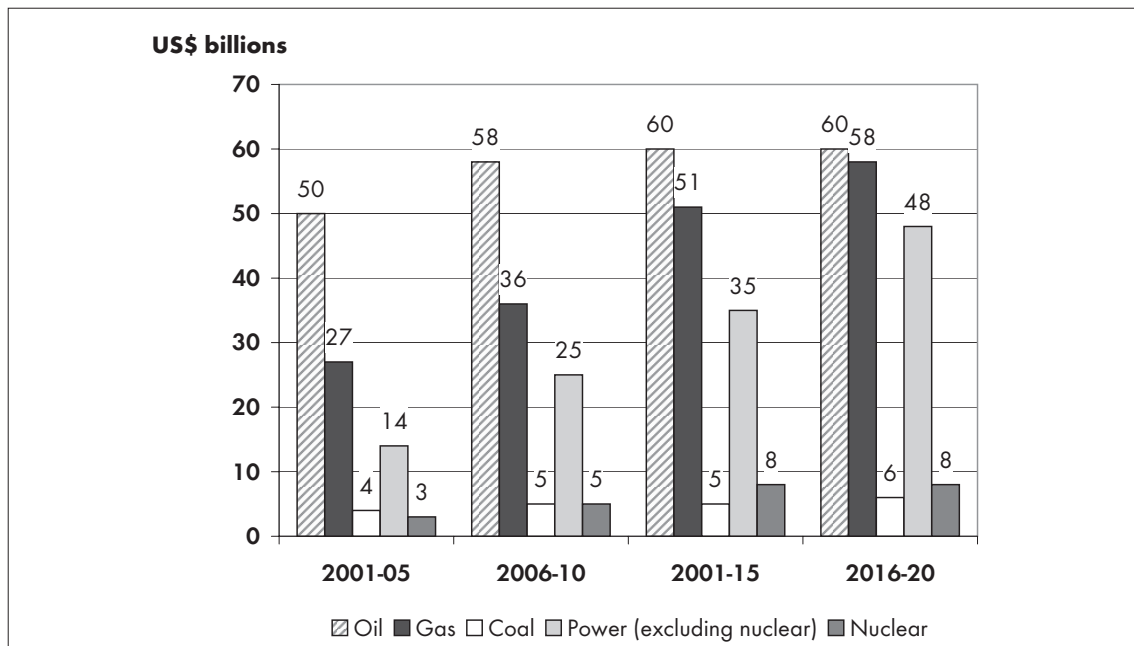
Figure 2: Russian Gas Supply Outlook

Source: IEA estimates, in: *Optimising Russian natural Gas*, IEA, Paris, 2006, p. 34

Figure 3: Gazprom's Investment Program 2007, US\$ Billion

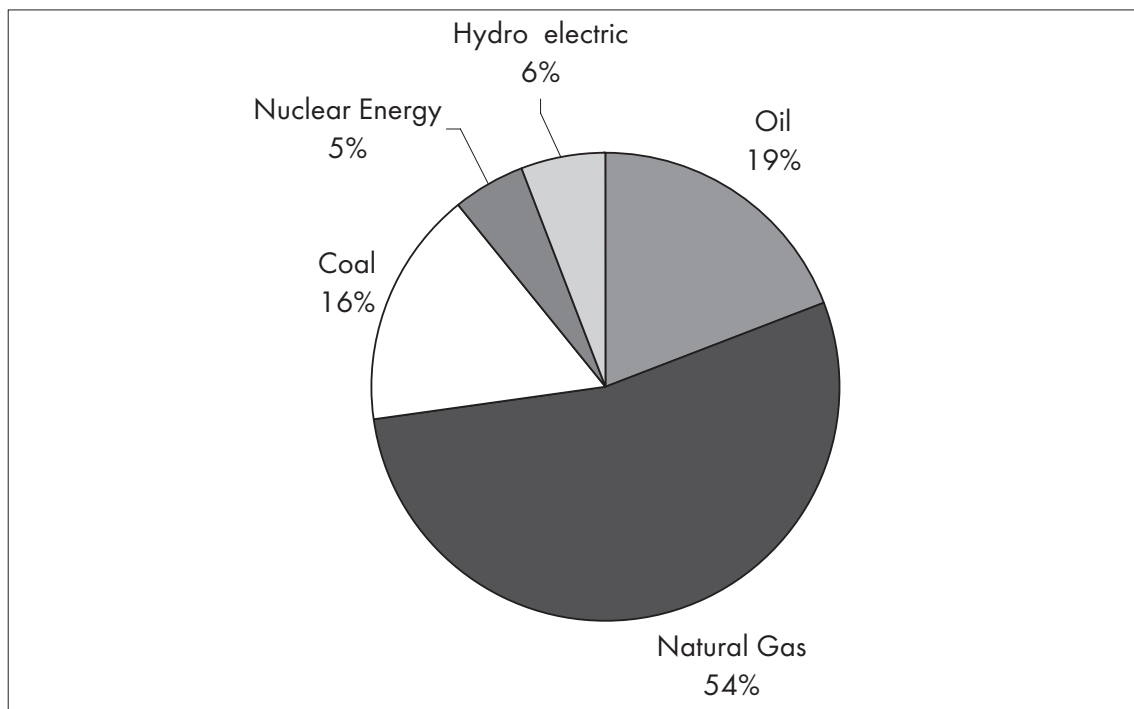
Source: Gazprom

Figure 4: Investment Required According to the Energy Strategy (Minimal Estimate)



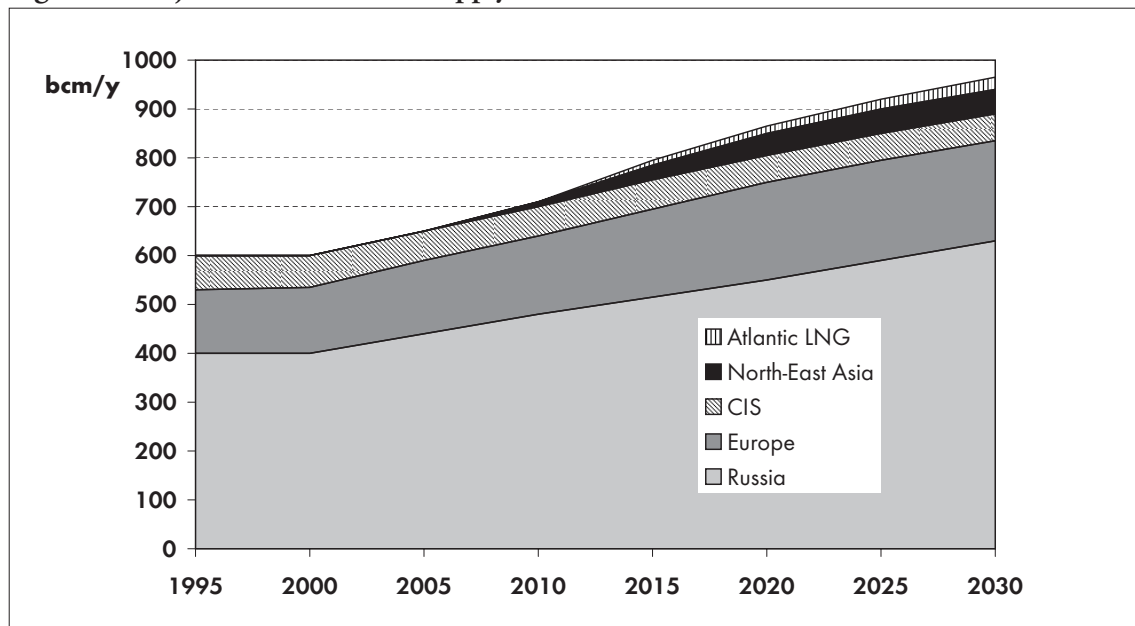
Source: Russian Energy Strategy 2003–2020

Figure 5: Russian Primary Energy Consumption by Source, 2005 (Million Tonnes Oil Equivalent)



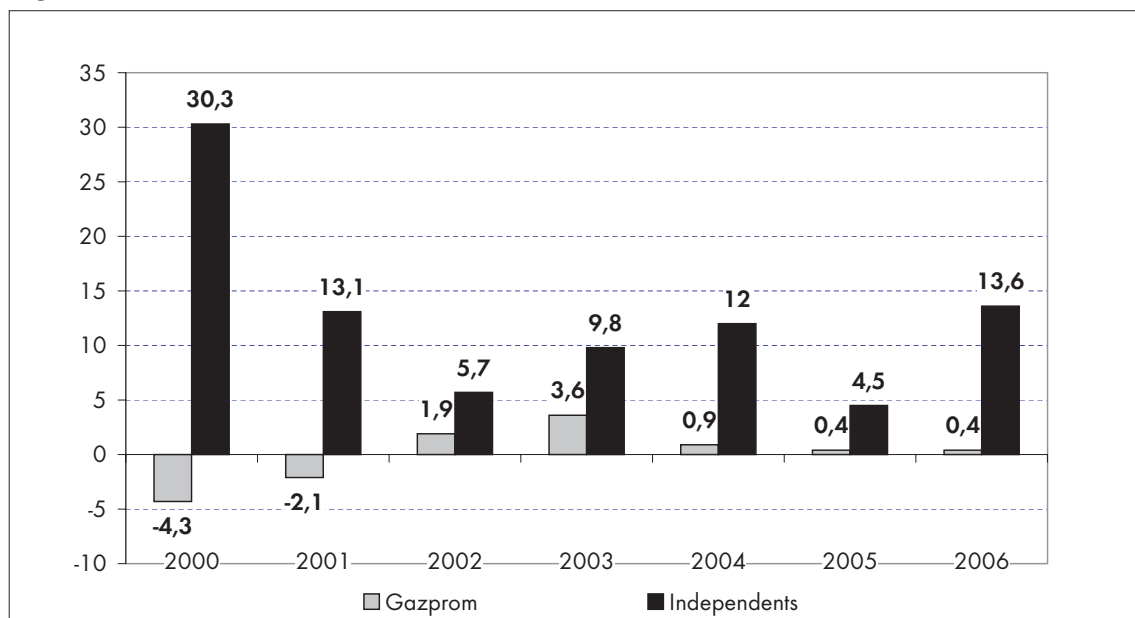
Source: BP

Figure 6: Projected Russian Gas Supply Until 2030

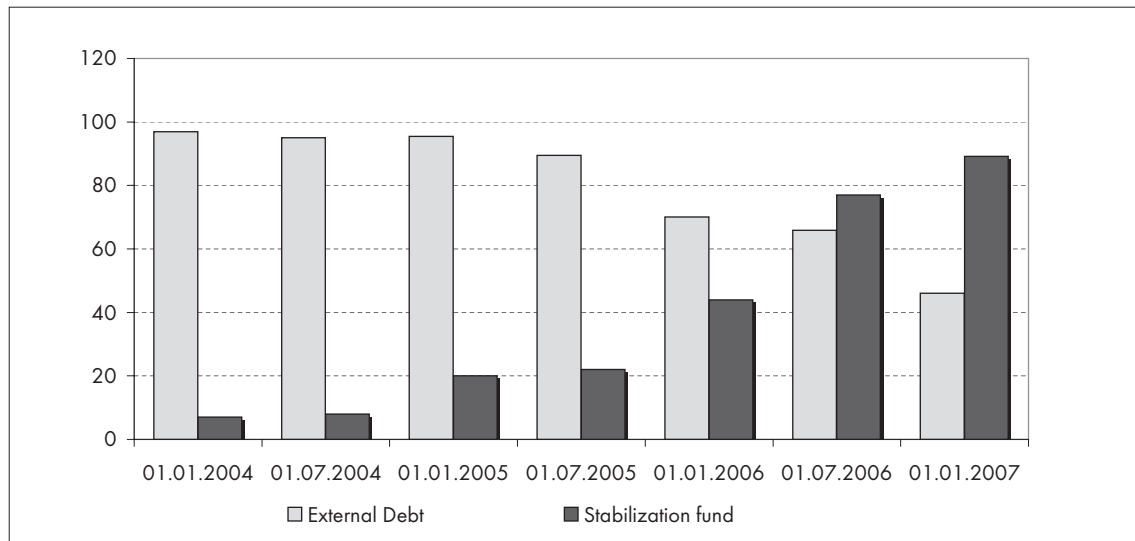


Source: Tatiana Mitrova, ERI RAS

Figure 7: Annual Gas Production Growth Rates (in %)

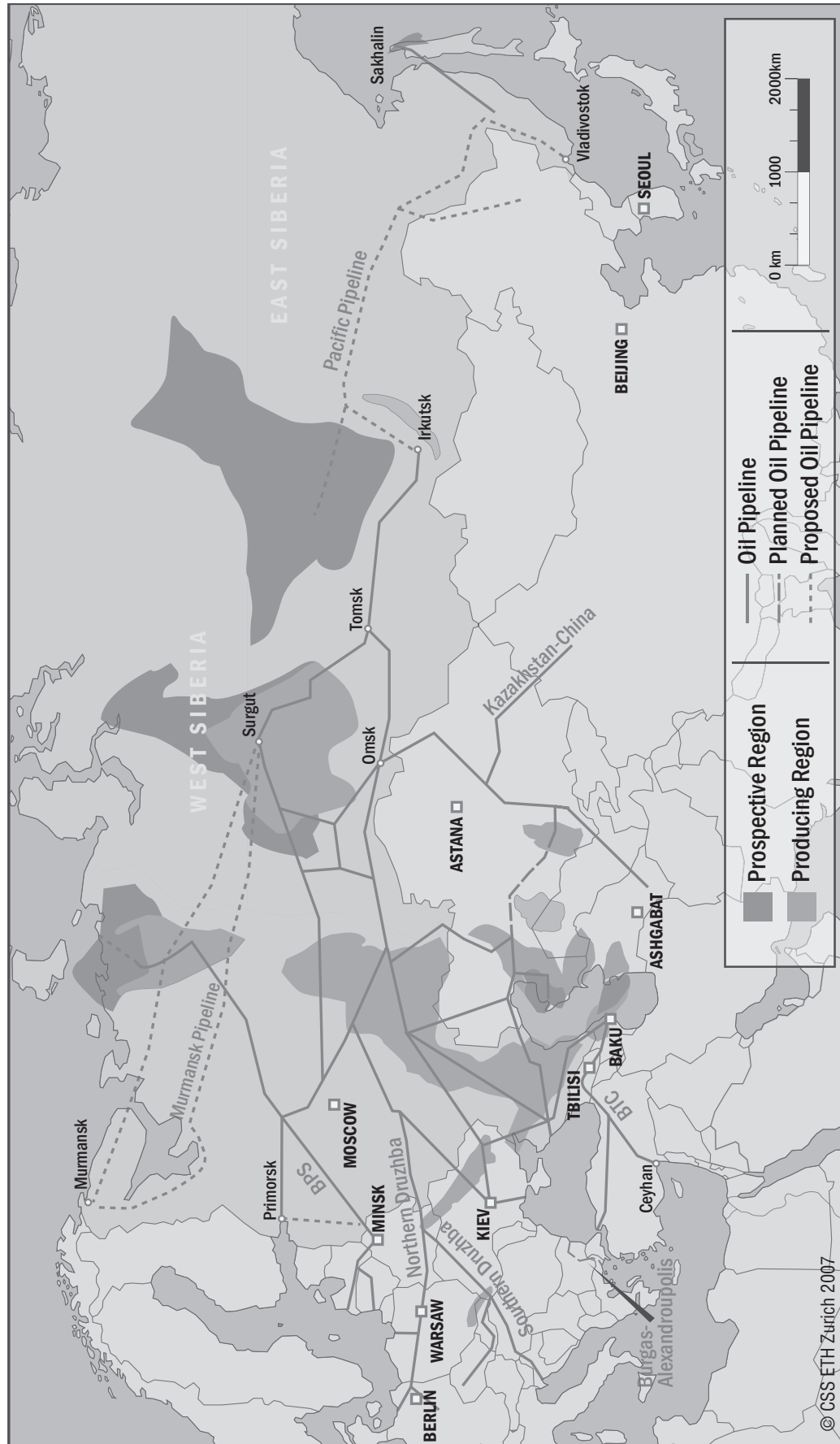


Source: Institute of Energy Policy

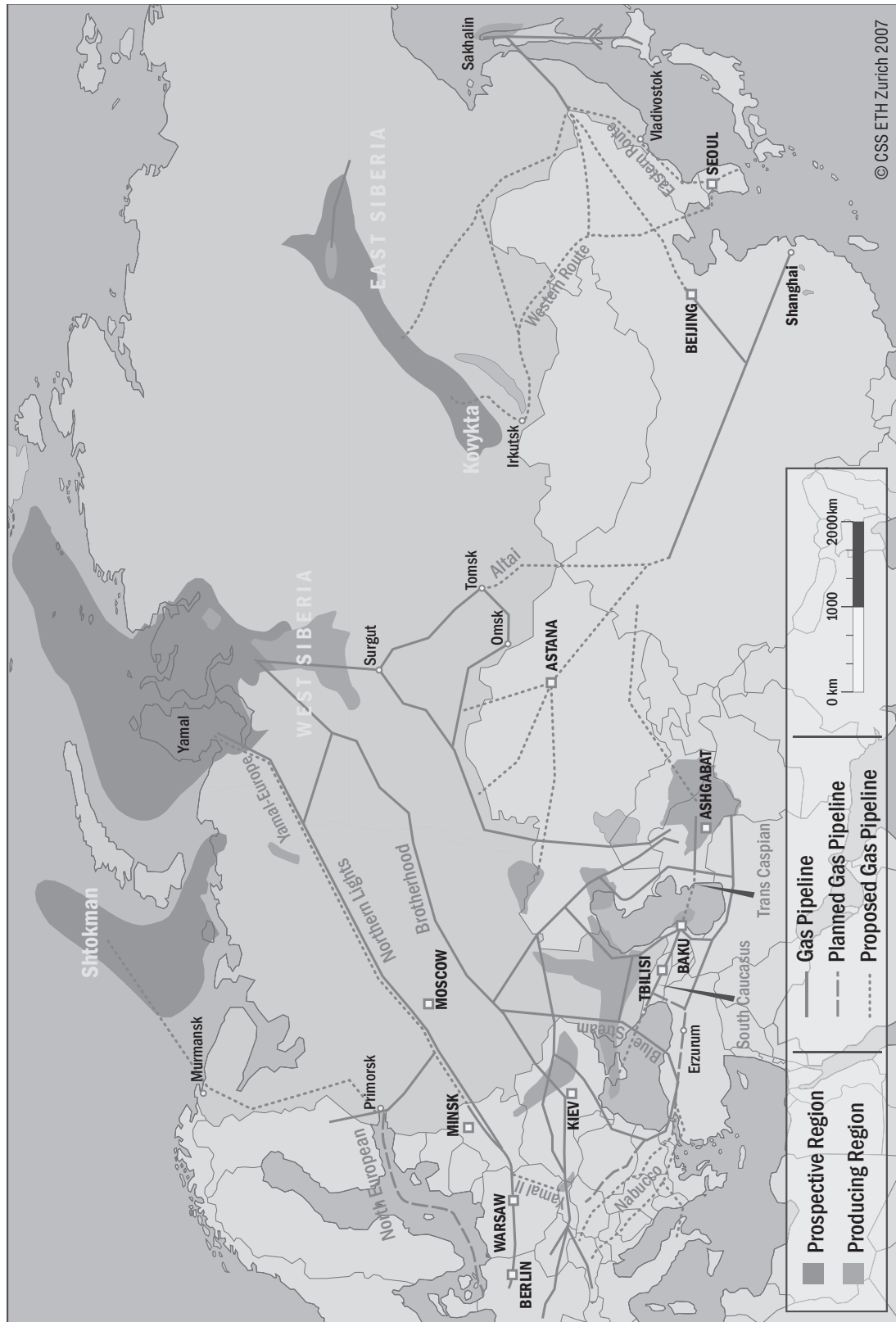
Figure 8: External Debt and Stabilization Fund 2004–07, US\$ Billion

Source: Central Bank of Russia, Ministry of Finance, Bank of Finland

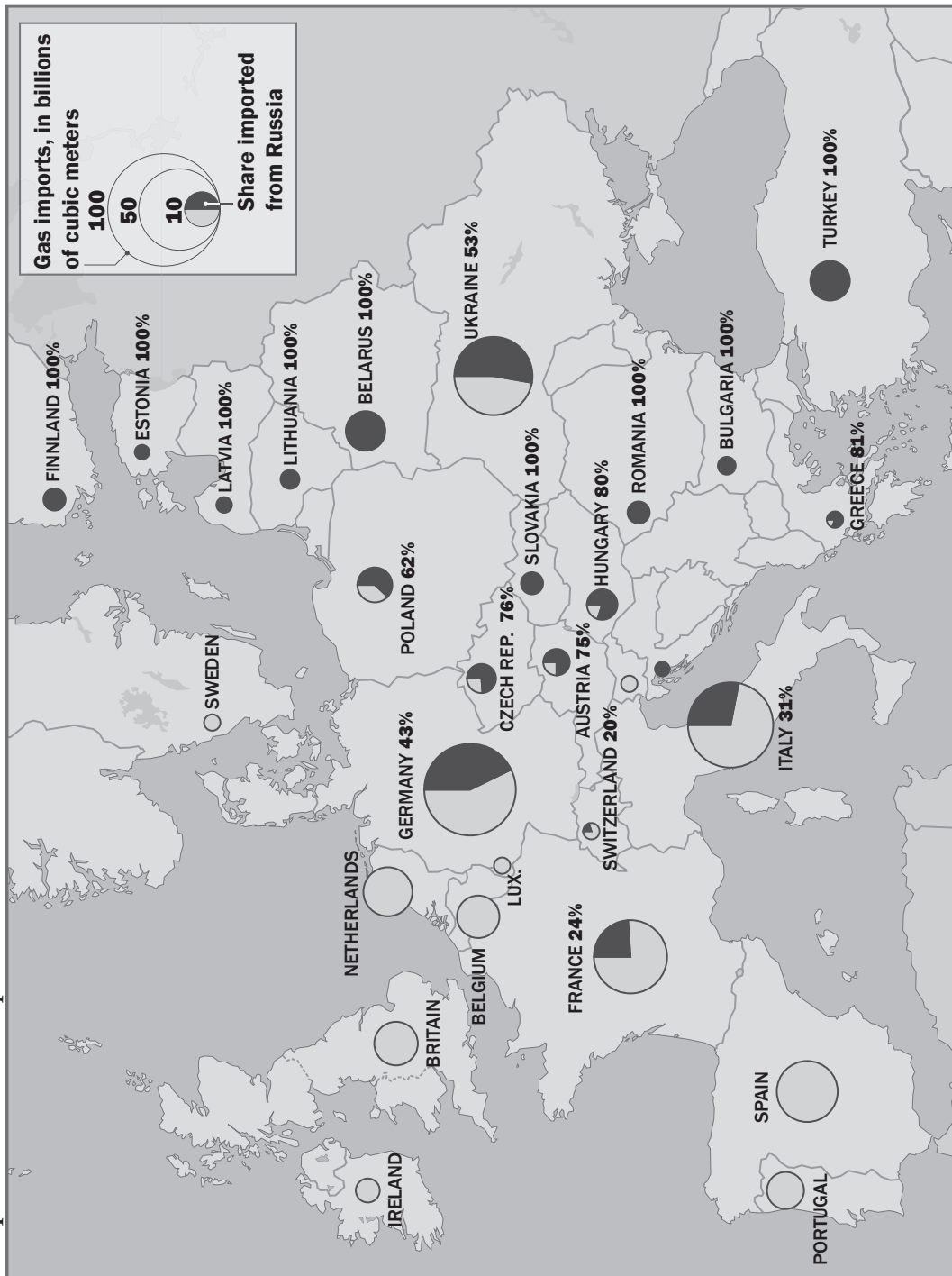
Russia: Main Oil Export Pipelines



Russia: Main Natural Gas Export Pipelines



Europe: Natural Gas Imports

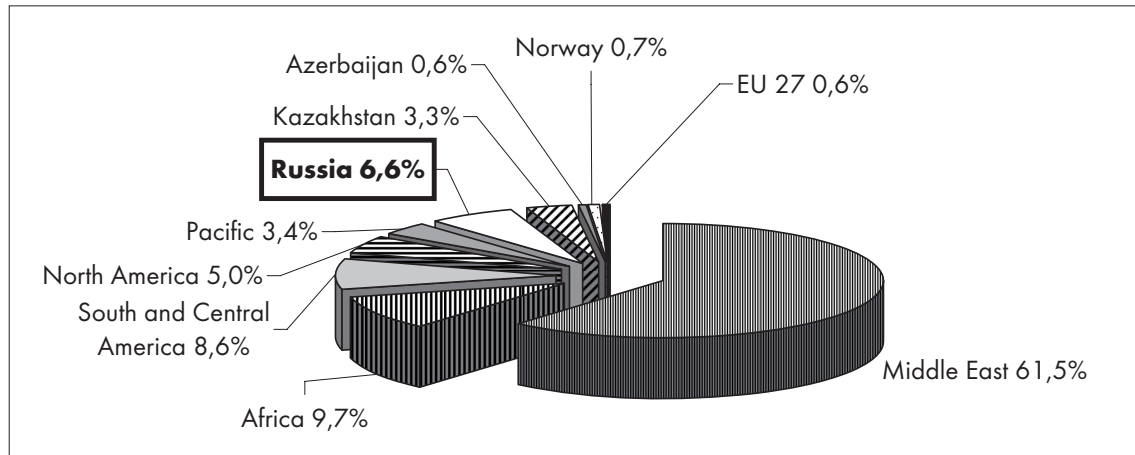


Source: International Herald Tribune, International Energy Agency, Verband der Schweizerischen Gasindustrie

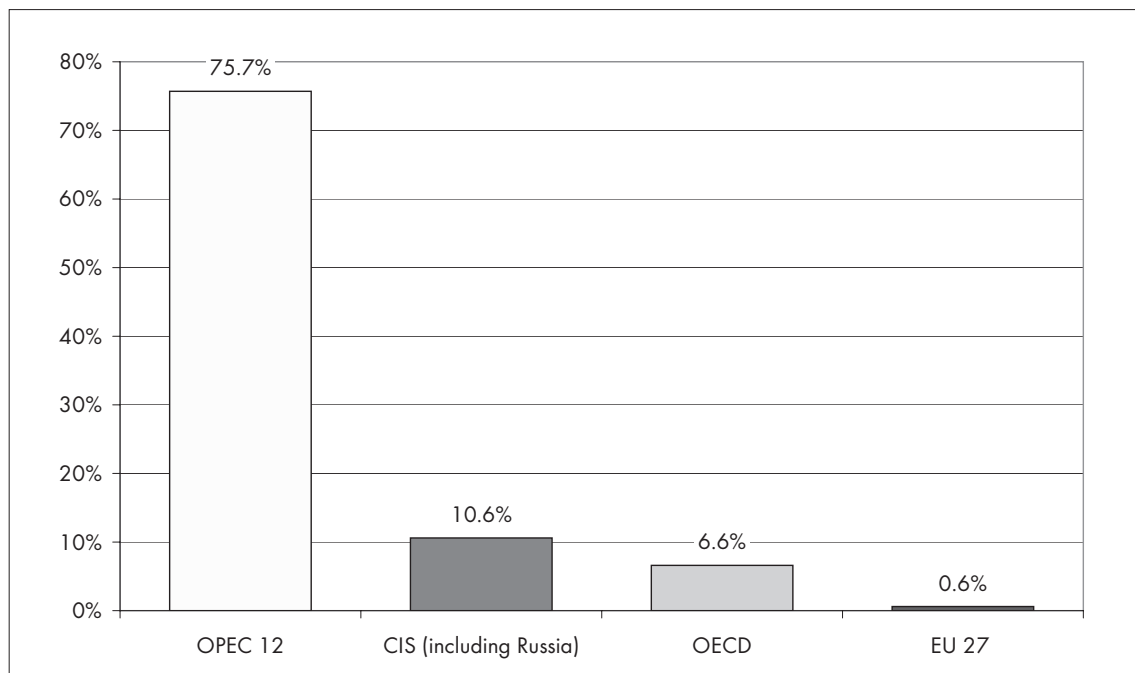
Russia's Oil and Gas Industry in an International Context

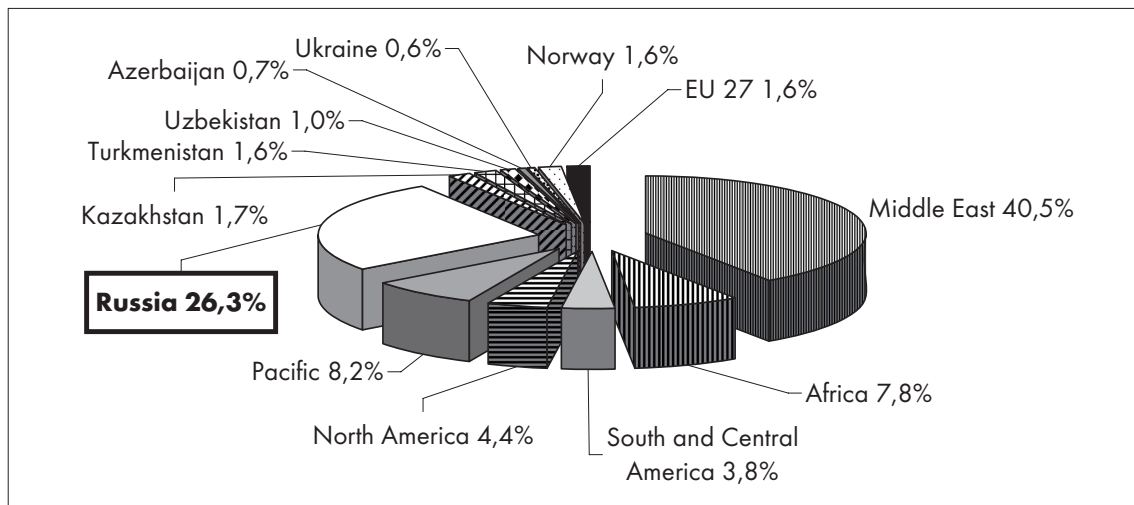
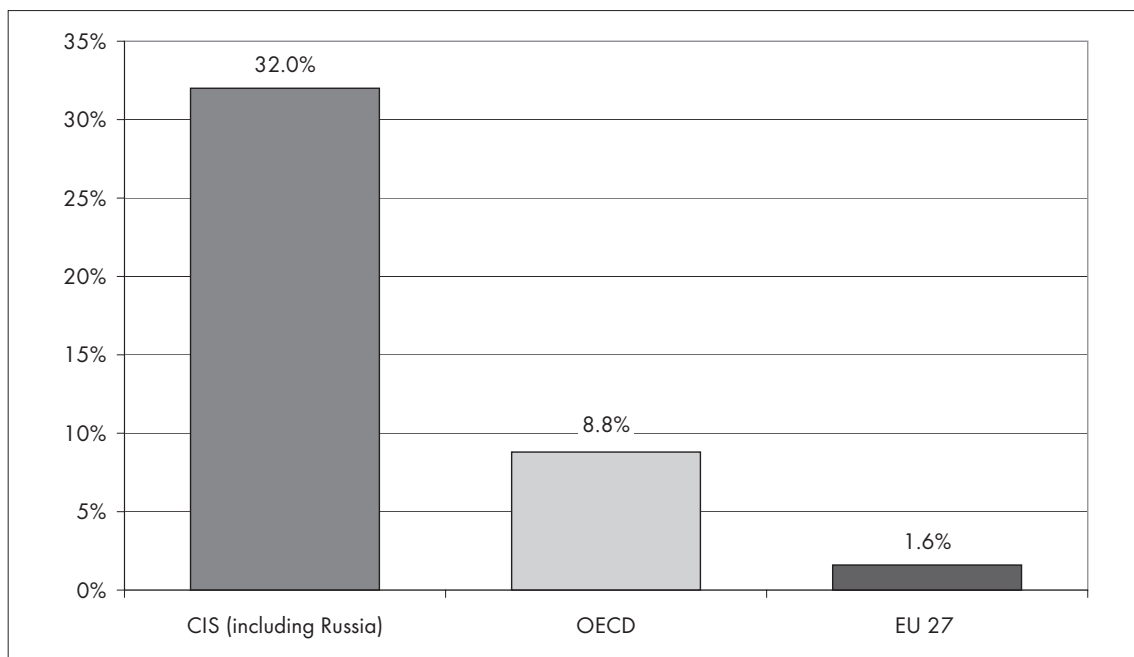
Source: BP Statistical Review of World Energy June 2007, <http://www.bp.com/statisticalreview>

Graph 1: Distribution of Worldwide Proven Oil Reserves (End of 2006)

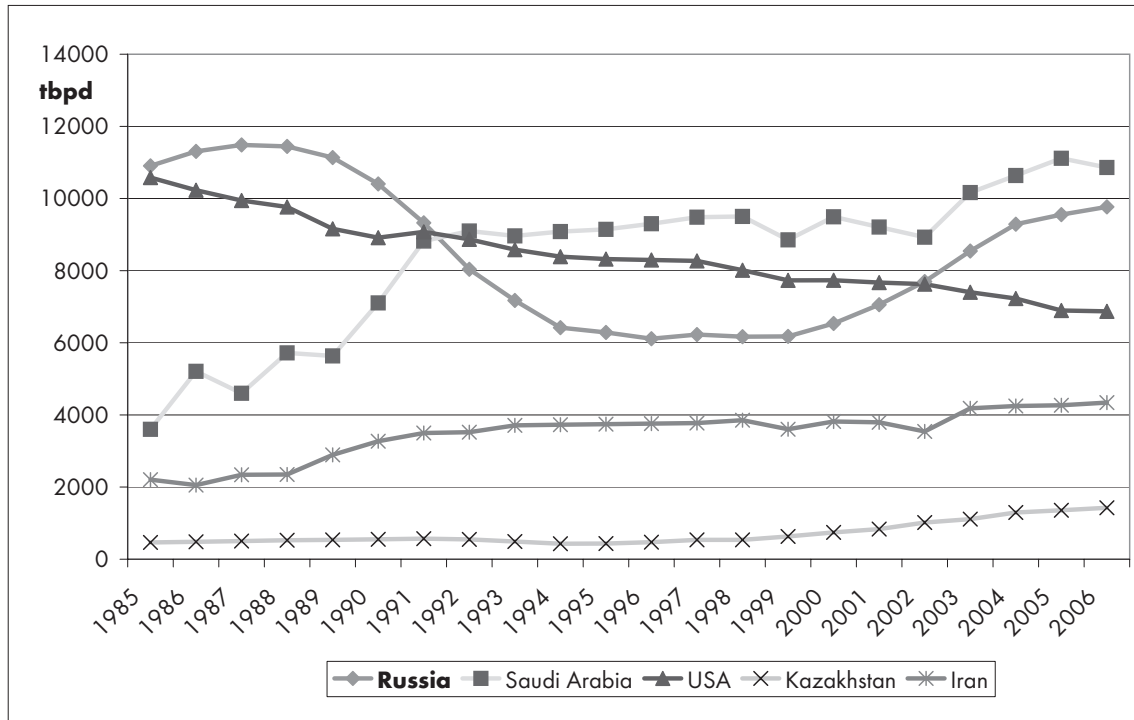


Graph 2: Distribution of Worldwide Proven Oil Reserves (End of 2006)

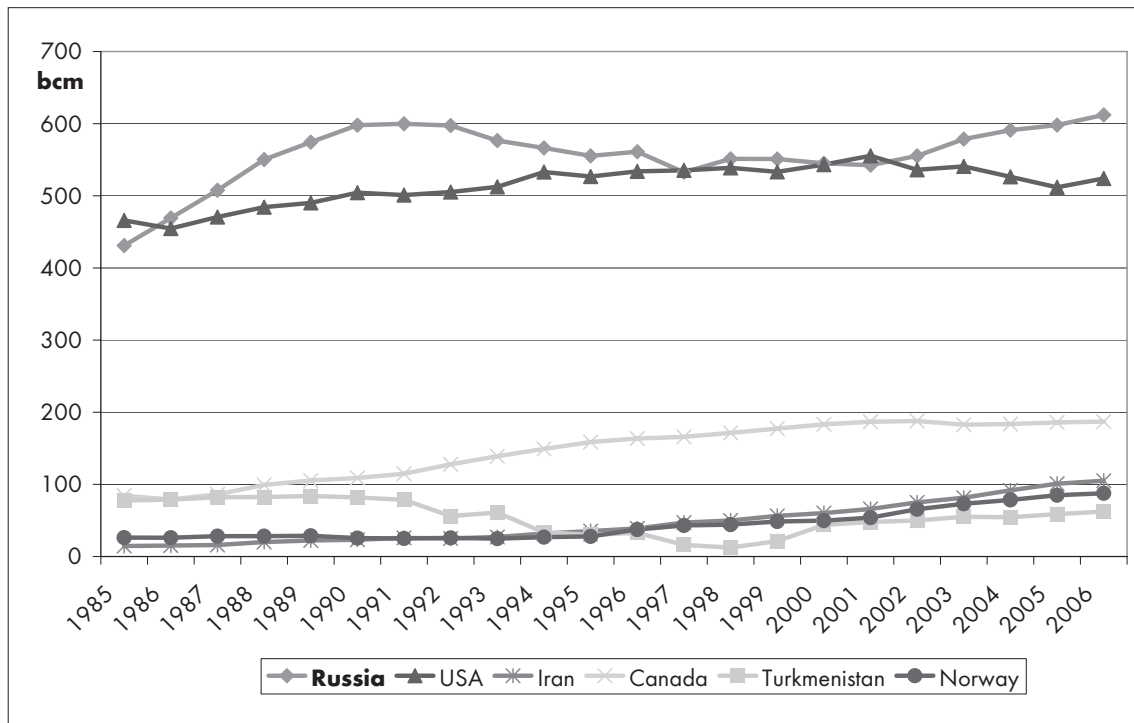


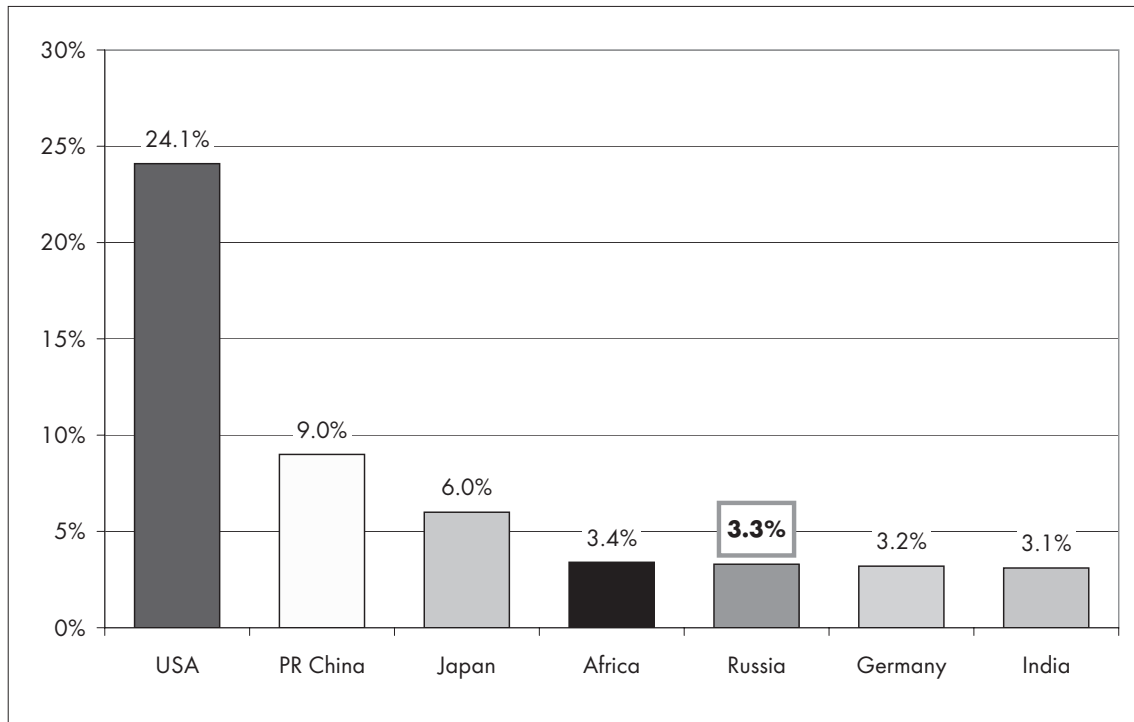
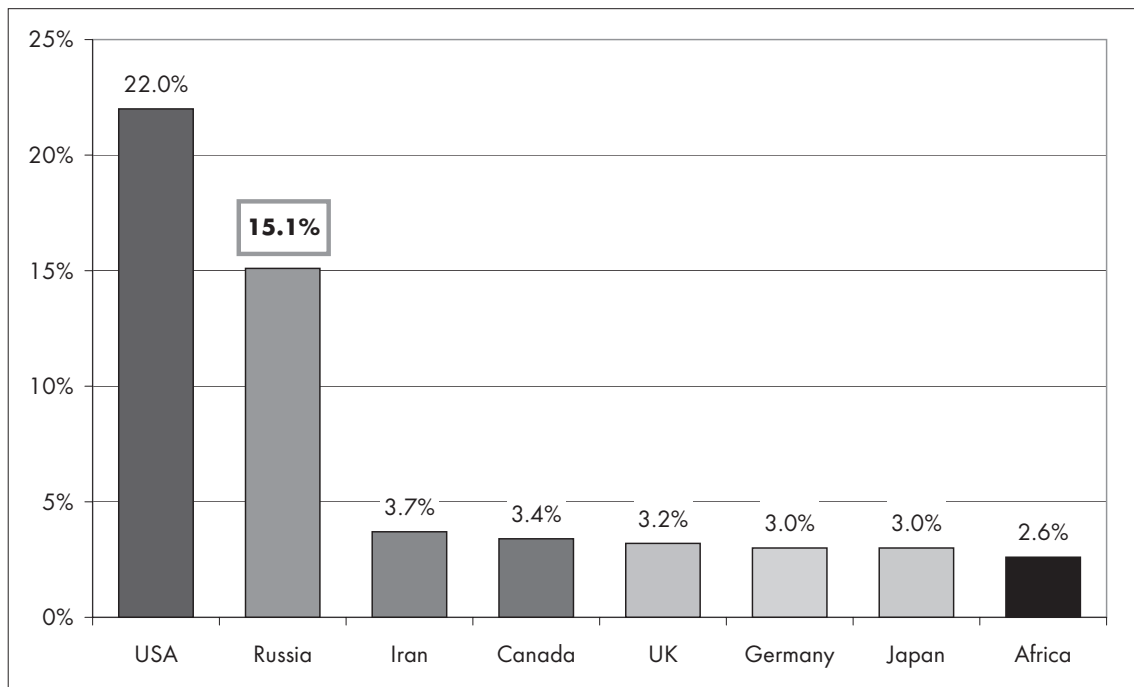
Graph 3: Distribution of Worldwide Proven Gas Reserves (End of 2006)**Graph 4: Distribution of Worldwide Proven Gas Reserves (End of 2006)**

Graph 5: Russia's Oil Production in an International Context 1985–2006
(in thousands of barrels per day)



Graph 6: Russia's Gas Production in an International Context 1985–2006
(in billions of cubic meters)



Graph 7: Share of Worldwide Consumption of Oil 2006**Graph 8: Share of Worldwide Consumption of Gas 2006**

*Part I: Russia's Energy Policy: Economic
Challenges and Political Strategies*

Russian Gas: Will There Be Enough Investment?

By Daniel Simmons and Isabel Murray, International Energy Agency (IEA), Paris

Abstract

In the following piece we outline some of the major challenges facing the gas sector in Russia and focus on where some of the potential upsides are to be found. While we remain concerned about the overall level of investment in Russian upstream and transportation, the potential of the independent gas producers to rise to the challenge seems strong given the right supporting policy measures. The Russian government seems to be moving in the right direction with regard to domestic pricing policy and third party access to the pipeline system, yet reliance on imported gas from Central Asia is likely to increase the risks to security over the medium term. Our concerns on investment need to be seen within the context of our overall concern about global levels of investment, in upstream gas, pipelines and other infrastructure and even in the burgeoning liquefied natural gas (LNG) industry (see the IEA's *Natural Gas Market Review 2007*).

Importance of Russia for Global Gas

Russia holds the largest share of proven gas reserves worldwide, it produces and exports more gas than any other country and is the second largest gas market in the world after North America. Russia also has a very strong export market in Europe where it accounts for almost a quarter of OECD Europe gas needs. It is in Western Europe that pipeline gas from Russia meets competition from Atlantic LNG. Through this interaction, Russian gas production and demand has the potential to affect other markets, such as the US or Japan, indirectly through the global LNG market. Therefore, an appreciation of supply and demand fundamentals in Russia is critical to gaining an understanding of the future of gas markets worldwide.

One state-controlled company, OAO Gazprom, dominates the Russian gas and hydrocarbon sector, accounting for over 60% of Russian reserves and almost 85% of Russian production. Gazprom owns the Russian gas pipeline system, a key part of any country's gas industry, and also has a legal monopoly on gas exports. There are a series of "independent" gas producing companies operating in Russia, which by dint of the above arrangements can only sell in Russian domestic markets where prices are some 15–20% of those in Europe. These companies, along with Russia's oil companies (which produce gas from their own fields as well as associated gas) account for another 20% of Russian gas reserves and produce between 15 and 20% of total production.

Demand for Russian Gas

The calls on Russian gas are many: Russian domestic gas demand, currently accounting for 65% of Russian production (430 bcm in 2005) is growing at an annual rate of 4–6%. This growth is driven by demand for electricity generation (gas provides almost half of Russian power) to support the strong economy, as well as a successful regional gasification program by Gazprom. Meanwhile, existing export customers in Europe are increasingly looking to Russia to replace falling domestic gas supplies while they too see rising gas demand, again from the power sector. Russia is also looking to new markets, such as China, India and North America.

However, before Russian producers can increase supply to customers, be they internal or external, new or old, it must offset declines of between 10 and 20 bcm/yr each year in existing fields. In particular, three super-giant fields, responsible for about half of Russian production, are declining fast. So far, Gazprom has managed the situation by a combination of infill drilling – bringing on a series of satellite fields surrounding existing sites – and by exploiting new geological structures in existing fields. The Nadym-Pur-Taz region has been the focus of this activity, and it is hoped that production will continue to at least 2011. Beyond this date Gazprom aims to produce first gas from greenfield regions – the Yamal peninsula, Barents Sea and East Siberia – requiring the resolution of a series of complex technical and practical challenges which are likely to translate into high capital expenditure and potentially long lead times. Gazprom itself has declared that the era of cheap gas is over for the state company.

Russian Gas Reserves, Investment and Production Plans

Russia clearly has sufficient reserves to back up ambitious supply plans; some 26% of global gas reserves (48tcm) are located in the country, and there are undoubtedly more to be discovered. Gazprom posted an increase in reserves from 29.13tcm to 29.85tcm in 2006, a reserves replacement ratio of 1.06. The sufficiency of reserves in Russia is therefore not an issue although it must be mentioned that many of these reserves are in challenging areas, either on or offshore in the arctic. While the gas is undoubtedly in place, it will be difficult, and hence expensive, to extract.

We are generally concerned about the level of upstream gas investment in resource-holding countries around the world, and see a tight global market for gas into the medium term. In Russia however, the level of concern is amplified because of its crucial importance as the largest player in the world's gas markets.

In meeting the demand for Russian gas, approximately USD 18 billion per year of investment will be needed to ensure that sufficient gas is produced between now and 2030, the majority of which is needed in production assets. As the owner of the Russian pipeline system and developer of the Yamal region, Gazprom will need to spend the vast majority of upstream and almost all pipeline investment. At the most recent board meeting, the directors of Gazprom agreed that the investment budget for 2007 would be USD 29.8 billion, broken down into capital investments of USD 12.8 billion, down USD 1.2 billion from the budget agreed at the beginning of 2007. Meanwhile, the financial part of the 2007 investment budget agreed to in August increased almost 3-fold in comparison to the budget agreed to in January, to USD 17 billion – in order to cover all of Gazprom's acquisitions over the year. While Gazprom increases the financial part of its investment budget to buy up assets of existing production, its capital expenditures fall far short of what seems necessary to ensure sufficient new production. Over the past five years, the growth in Russian gas production has been mostly due to the independent gas producers and Russian oil companies, while Gazprom gas production has grown by less than 1% per year. Furthermore, it is unclear to what extent this growth is a result of Gazprom's acquisition of stakes in other gas producing companies which are then aggregated into its production numbers.

However, the problem may not be one of adequate investment, but inadequate transparency in communicating Gazprom's plans to consumers. While communication issues are a less serious problem than are those of adequacy, such problems may adversely affect the growth of Russian gas export markets as customers start to question future plans. We have been urging Gazprom to publish a greater level of detail with regard to its investments to increase trust between both importer and producer, leading to greater security for all, both suppliers and consumers. As in the case of investment, we see this against a background of needing improved transparency in many regions of the world.

Import and Export Security

Recent commercial disputes with its neighbors that have cascaded into Western markets have caused many observers to question Russia's ongoing commitment to reliable supply. However, Russia's long history as a reliable supplier of gas to Europe suggests that it is Russia's intention to honor contractual commitments to trade partners in IEA and the EU. Nevertheless, it is clear that more robust commercial terms are needed for many of these contracts if indeed third party security is to be ensured.

The Russian pipeline system as it now stands was conceived in the Soviet era, built on the basis of two sources of natural gas reserves – major fields in West Siberia and the Central Asian states (Turkmenistan, Uzbekistan and Kazakhstan), which then made up part of the Soviet Union. While these Central Asian states are now politically independent of Moscow, the pipeline system ensures that they are still physically linked with regard to gas trade. Annually some 50 bcm of Central Asian gas has been transported through the Gazprom system. Traditionally, Ukraine has been supplied by gas from Turkmenistan. Long term contractual agreements for Russian imports of Turkmen gas (of up to 80 bcm/year from 2009–2029) affect this arrangement – in terms of control and ownership of the gas – and increase Russia's dependence on Central Asian gas to meet its export obligations to the near and far abroad. Furthermore, because they travel through a unified system, domestic and export demand is exposed to some degree of risk from Central Asian states. If Central Asian gas production increases as expected in the Russian energy strategy, then these risks may increase.

Independent Gas Producers

Independent gas producers and major Russian oil companies control about a third of Russian natural gas reserves – on the order of 11 tcm. In 2006, non-Gazprom natural gas production reached 106 bcm, accounting for 16%

of the total. The Russian Energy Strategy assumes that the share of such “independent” production out of the total transported by the Gazprom system will increase to 20% (140–150 bcm) by 2020. A review of various projections from the key non-Gazprom gas producing company websites reflects a much more bullish outlook with potential production volumes of over 300 bcm per year possible in the period 2015–2020 if the investment climate is favorable. Key factors which can help to mobilize this high-potential source of gas production are focused on providing security of off-take at reasonable prices. Currently vast quantities of gas (more than 20 bcm/year) are flared in Russia as the only alternative to the poor economics of sale and hence production.

Russia is seeking a solution to ending gas flaring through ruling it unlawful (i.e., enforcing license terms of 95% use of associated gas by 2011) – but this risks resulting in a dramatic decline in accompanying oil production as seen in other countries which have enforced an outright ban. On the other hand, policy measures, such as improved economic incentives to remunerate gas production, will have the double benefit of reduced flaring and increasing non-associated gas production. There are two areas which would seem to need attention: access to transportation capacity and price.

Transportation conditions which may lead to increased independent production include improving the terms of access for independents and specifically, continuing to improve pipeline regulation to ensure that it is cost reflective. Progress has been made recently in this effort following the formation of a “Gas Market Coordinator” partnership in 2004 between producers and consumers. More work remains to be done, but this seems to be a positive development for independent gas production in the Russian upstream.

Regarding pricing, wellhead prices for independent gas production in Russia will depend heavily on domestic market prices as the “premium” export market seems likely to be controlled by Gazprom. Reform of domestic gas pricing will therefore have a large effect on gas production from independents. It is essential that prices rise to levels where producers can earn revenues in excess of cost after transportation and essential gas processing.

However, even after issues of access to transportation capacity and price are addressed, there will remain myriad challenges facing independent gas producers in Russia. The key seems to be in ensuring that the power of Gazprom as a monopoly buyer/transportation provider is balanced so that independents have confidence that they can sell gas profitably over an extended period.

Domestic Price Reform

Gazprom sells gas in the domestic market at wholesale prices regulated by the Federal Tariff Service. In 2005, Gazprom sold 307 bcm on the domestic market for about USD 13 billion, an average price of USD 1.11/MBtu – roughly a fifth of that paid by OECD countries for gas in the same year. Russian *per capita* consumption of gas is similar to that in Canada, but consumption per unit of GDP is roughly five times higher than IEA countries. Gazprom has argued for years that regulated prices are below replacement cost levels and contract prices to Europe. Despite low prices, Gazprom has ongoing problems in collecting payment from Russian customers – in 2005 it reported a total of USD 2 billion in total unpaid bills.

Annual gas price increases on the order of 25% or more are planned – although elections in early 2008 could slow the pace of these plans. The outlook is for domestic gas prices to about double from current levels to just over USD 2.64/MBtu (USD 100/1,000 m³) in 2010, still only 40% of current European export prices (which may change in the interim). President Putin has stated that he expects Russian domestic gas prices to level off at a rate of 60–70% of European prices given the transportation netback. Domestic prices still have a long way to go after 2010 to match this intended ratio given the differential of nearly USD 5.28/MBtu (USD 200/1,000 m³) based on current prices. Despite the intention to raise prices to “European levels”, it is worth noting that most gas producing countries with which Russia must compete in a number of sectors have very low levels of gas “feedstock” prices. This factor may act to limit the scope for price rises in those sectors.

The establishment of a gas exchange in Russia, where up to 10 bcm is being sold at unregulated prices, 50% by Gazprom and 50% by independent producers, is an important step towards more market-based pricing in Russia's domestic gas market. Prices on the gas exchange have been as high as USD 2.48/MBtu (USD 94/1,000 m³) compared to regulated gas prices of about USD 1.06/MBtu (USD 40/1,000 m³). As in IEA Europe, we believe that there are considerable benefits to gas exchanges, which allow price transparency according to economic factors. Russia is making progress in improving gas sector regulation for market participants and working on installing a more effective balancing regime. Improvement of modified entry/exit schemes and balancing regimes is an ongoing challenge in many IEA European gas markets.

Conclusion

Russia is the world's largest gas producer and exporter and the biggest reserve holder. In the current tight market circumstances, it has never been more important to create the correct economic conditions within the Russian gas market. If conditions for independents can be improved, then Russian gas production will surely rise. If policymakers continue to gradually reform gas pricing, then efficiency will improve as companies start to see the positive economics of investing in new plant and equipment.

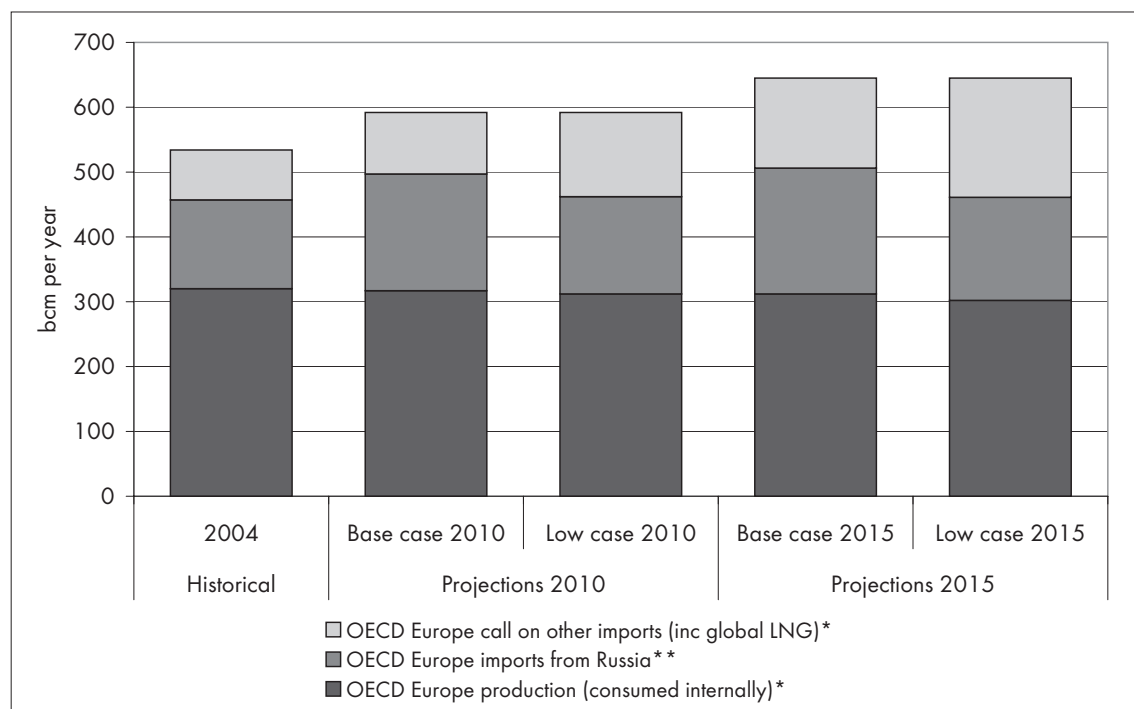
Nevertheless we remain worried about the overall level of investment in Russia which seems insufficient to guarantee security of supply and hence will affect security of demand. We therefore repeat our call for greater transparency in the sector, particularly with regard to investment in future production. It is clear that there has to be a steep change in Russian gas investment, given the costs and technical challenges for the next big gas provinces.

About the authors:

Daniel Simmons is the lead author of the recently published IEA Gas Market Review 2007.

Isabel Murray is the Russia Desk Officer in the Office of Global Energy Dialogue at the International Energy Agency.

Russian Investment Risk Leads to Global LNG Tightness



Source: IEA.

* Information from Supply/Demand section.

** Base case Russian Government Energy Strategy (2003) total projected exports to IEA Europe.

** Low case IEA scenario based on restrained investment.

Note: We have assumed total Russian exports per Russian Government Energy Strategy (2003) less 77 bcm of Russian gas flows to countries other than OECD Europe for all future periods (Russia supplied 77 bcm to these countries in 2005). We assume that Chinese export plans made in 2006 do not form part of this 2003 Energy Strategy.

The Russian Oil Industry between Foreign Investment and Domestic Interests

By Julia Kuszniir and Heiko Pleines, Bremen

Abstract

As the world's second biggest oil producer, Russia has profited hugely from high world market prices for oil. In contrast to the gas industry, the Russian oil industry was privatized in the 1990s and the domestic market for oil and oil products was liberalized. Foreign investors were allowed to play an important role in the development of the industry. However, at present the Russian leadership is aiming to increase state control over oil production and to focus on the development of the domestic market. This strategy may hamper efficiency.

Oil Production and Exports

Though Russia holds only 7 percent of worldwide proven oil reserves, the country has in recent years been the world's second largest oil producer, ranking between Saudi Arabia and the USA. Russia's oil production is likely to rise until the end of this decade. However, for the following decade many forecasts are pessimistic. They see four main risks to production growth. First, known, accessible reserves are limited. Undiscovered oil reserves may be large, but their exploitation will be difficult due to their remote location and unfavorable geological conditions. Second, investment in exploration and production has declined in recent years. Third, onerous windfall profit taxes block rising world market prices from stimulating Russian oil production. Fourth, state ownership in the oil industry has been growing in recent years. Combined with restrictions on foreign investment, expanded state intervention poses a serious risk to efficiency.

Oil exports also face major challenges. Nearly two thirds of Russia's oil exports go to the EU. However, the Russian government seeks a diversity of customers as a clear long-term aim. According to its energy strategy, exports to Europe will grow, but at a much slower pace than exports to Southeast Asia and North America. As a result, according to the targets, Europe's share in Russian oil exports will decrease to about 50 percent by 2020, while the proportion sent to America and Asia will rise from 3 percent to about 30 percent. This different geographical focus implies not only a considerable rise in production, but also the realization of ambitious pipeline projects. Because of constraints on the existing export pipeline infrastructure, Russian exporters are forced to export over 50 million tons of oil per year via more costly railroads and internal waterways. Using these forms of transportation increases costs by US\$5 to US\$7 per barrel.

The Domestic Market

Domestic prices for oil and oil products were liberalized in 1992 and, according to Russian legislation, they are not subject to regulation by the state. Therefore, the state has only indirect influence on prices. However, this indirect influence is considerable. First, the state owns some production companies and the operators of the oil and oil products pipelines. As a result, it can directly determine the price policy of some market players. Second, a large part of the prices of oil and oil products consists of taxes, which are also directly set by the state. Third, export tariffs for oil and oil products set by the state have a direct influence on the attractiveness of supplies to foreign vs. domestic markets. Fourth, the state can pressure the oil companies to lower their prices either formally through anti-monopoly investigations or informally through round table talks with leading managers to impose a temporary moratorium on prices increases.

Domestic prices for oil and oil products are set in a highly monopolistic environment. The privatization of the oil industry in the first half of the 1990s was based on regionally-concentrated, vertically-integrated oil companies. As a result, there are wholesale monopolists in many regions, which in turn determine retail prices, although independent retail traders have emerged in most regions. As the oil companies often collude with regional authorities, their dominant market position is often protected by regional administrations. According to an estimate by the Russian Anti-Monopoly Commission, the market for oil products is either monopolistic or oligopolistic in about two thirds of Russian regions.

Nevertheless an analysis by the Cambridge Energy Research Associates came to the following conclusions: "(1) domestic wholesale prices for refined products are not excessive, but generally in line with export parity levels (although gasoline is priced at a premium due to the tightness of the balance for high-octane material); and

(2) there is no evidence of monopoly rents in retail prices even in highly monopolized regions where a single company might control 75–85 percent of sales. We believe that the major factor causing the substantial increase in product prices within Russia is the upward pull exerted by international price trends. It also appears that the wide gap noticed between retail and wholesale prices in Russia can be largely attributed to the relatively high transport costs of moving products over Russia's vast geographical space from a relatively small number of refineries rather than monopoly rents per se." (Cambridge Energy Research Associates: Russian Domestic Oil Price Outlooks Workshop, April 2006)

Oil Refining

In the 1990s, Russia's major vertically-integrated oil companies focused on the upstream business, deriving most of their profits from crude exports. The domestic market for oil and oil products was unattractive due to low prices and the inability of many customers to pay for the oil they consumed. In addition, high export tariffs for oil products (meant to secure supplies for the domestic market) and tax levels rising in line with refining depths, discouraged investment in refining.

Outdated refining capacity was shut down rather than modernized. In the last ten years the aggregate capacity of Russian refineries dropped by nearly a fifth. The remaining refining capacity is still in need of modernization. As a result of under-investment, the average depth of refining in Russia does not exceed 73 percent, and output of light oil products is estimated at 55 percent (rates in the OECD are about 90 percent and 75 percent respectively). Only five Russian refineries have a refining depth of more than 80 percent.

However, the outlook for Russian refining is brightening fast. Demand for refined products is rising domestically and internationally, while at the same time margins for high-quality products from Russian refineries are rising faster than those for low-quality products.

Domestic demand is rising rapidly due to increased consumer spending. The dynamic growth in car sales has led to growing demand for gasoline. Although gasoline use per car is expected to fall, the Russian Ministry of Industry and Energy forecasts overall demand for gasoline to rise by a third by 2015. Since 1998 retail gasoline prices have risen much faster than average consumer prices, thus improving sales margins. The industry's limited capacity to produce high-octane gasoline for cars has led to a pricing premium in the domestic market for gasoline.

At the same time, refining margins have been rising worldwide, driven by a global move towards cleaner fuels. As utilization rates have risen, the long-distance trade in refined products has become an important aspect of the business, increasing the international demand for Russian exports of oil products. As a result, the average capacity utilization at Russian refineries has risen from about 65 percent in 2000 to about 80 percent in 2005, not too far below the average worldwide rate of 86 percent.

The Russian government has adjusted taxes and export tariffs to favor domestic oil refining. Since export tariffs were changed in 2005 to make exports of refined products more attractive than crude exports, exports of oil products have soared, rising above 100 million metric tons (mmt) in 2006 and generating revenues of US\$44 billion. In addition, tax levels are no longer rising in line with refining depths. Accordingly profit margins for high quality products have become higher, thus encouraging investment in new production technology.

State Control over Strategically Important Sectors of the Economy

As the oil industry is one of Russia's most important and most profitable businesses, it has attracted considerable foreign investment. As a result Russia's oil and gas production accounts for about a third of total foreign investment in the country. In addition, oil refining contributes another 7 percent. The biggest foreign direct investors in the oil industry so far are the participants in the major Sakhalin production sharing agreement (PSA) projects (Sakhalin I and II), concluded in 1996, and British Petroleum, which merged its Russian activities with the Tyumen Oil Company (TNK) in 2003. Additionally, ConocoPhillips has entered the Russian oil industry through portfolio investments and now holds 20 percent of Lukoil. For an overview of foreign investment in the Russian oil industry, see Table 1 on page 35.

However, fears of a sellout to foreigners in strategic parts of the economy have always been a part of Russian political debates and often strike a chord with Russian voters. The population strongly opposes any foreign involvement in strategic sectors of the economy and in the energy sector, in particular. Experts from the state sector, such as high-ranking bureaucrats from the relevant ministries and members of respective parliamentary commissions, are more open to foreign investment in general. But a majority of them speak out against foreign investment in the oil and gas industry (see Graph 1 on page 34).

However, in the 1990s Russia did not pursue a consistent policy towards strategic sectors. On the one hand, this policy was part of a political struggle between liberal-minded reformers in the government and the communist/nationalist factions in parliament. On the other hand, the treatment of strategically important companies was often improvised according to specific urgent needs, including financial ones.

The present economic boom has now made Russia under President Putin much more self-confident. State policies currently seek to increase state control in strategic sectors of the economy mainly through ownership of big enterprises in these sectors, which are then united into a state holding company. Through this state holding company the state can then control the respective economic branch and influence its development directly. State representatives to company boards are state employees either from the responsible ministry or, in the case of chair-people, sometimes with a secret service background.

What is not yet clear, and subject to controversial debate in Russia as well as internationally, is the way through which the state wants to acquire additional stakes in enterprises it considers to be of strategic importance and the extent to which the state wants to concentrate ownership in the respective sectors of the economy.

As far as the ways to increase state control are concerned, the Russian state has used both civilized and uncivilized methods. While the former clearly prevail across the economy as a whole, the latter have received much greater publicity, particularly because of their application in the energy industry. In most cases the state does not directly acquire ownership, but rather acts through state-owned companies like Gazprom or Rosneft.

The civilized method of increasing control over strategic sectors of the economy is to unite all state shares into one holding company and to let this holding buy additional stakes at market prices, as happened in the case of Sibneft. In addition, ownership by outside (and especially foreign) shareholders is restricted by legal means.

The uncivilized method of increasing state control over strategically important enterprises is based on manipulated allegations of legal wrongdoings (especially concerning tax, safety and environmental regulations), which lead to pressure in the form of bad publicity, office searches and the confiscation of company documents, frozen bank accounts, hefty fines and the arrest of senior managers. This strategy is above all associated with the Yukos case. In addition, the Sakhalin II consortium was put under pressure in order to sell a stake to Gazprom.

In summary, it seems that the state wants to increase its share in the oil industry considerably and rapidly, and therefore uses uncivilized measures, whereas in other branches of the economy deemed strategically important, the state has used more civilized methods, such as creating a "national champion," which will then be able to compete successfully with foreign investors in the longer run.

The second important question is how much control the state wants to get over these strategic sectors. This question has two aspects. First, how many enterprises can continue to operate without state ownership and second, what will the role of private investors be in state-controlled companies? At present the state does not seem to have a clear answer to these questions. As a result, plans for different branches change rather rapidly, while conflicting concepts are being developed by different state agencies. State acquisitions of strategic enterprises often look improvised. A consistent framework may only emerge after the election period of 2007/08.

Conclusion

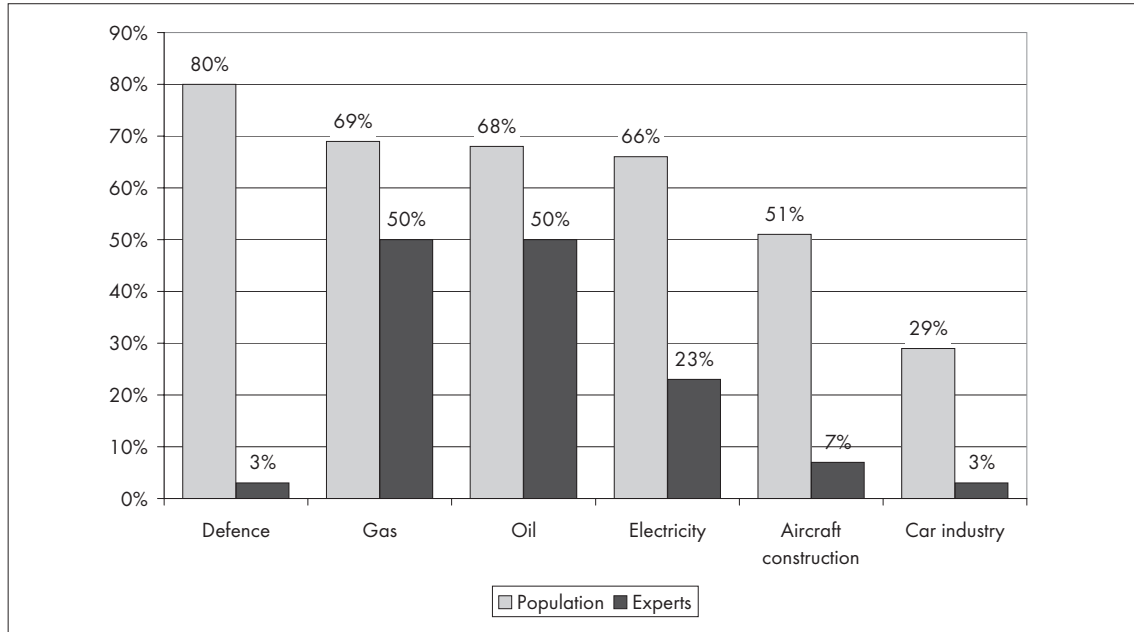
It should be noted, that in oil production the state's share still stands below 50 percent, as Graph 2 on page 34 indicates (though it may increase further if Surgutneftegaz is sold as persistent rumors have it). At the same time, shares of the state-owned Rosneft company have been issued through an IPO. Gazprom, the major gas company which now has acquired assets in oil production, is only 51 percent state-owned. This situation seems to indicate that, on the one hand, the state wants majority ownership in the major oil companies, but, on the other hand, loyal (majority Russian-owned) companies can continue to operate without the state as a shareholder and foreign investors can be active as (friendly) minority owners. However, the government's present ideas about corporate governance suggest that the performance of Russian state-owned companies may serve to supply arguments in favor of private ownership.

About the authors:

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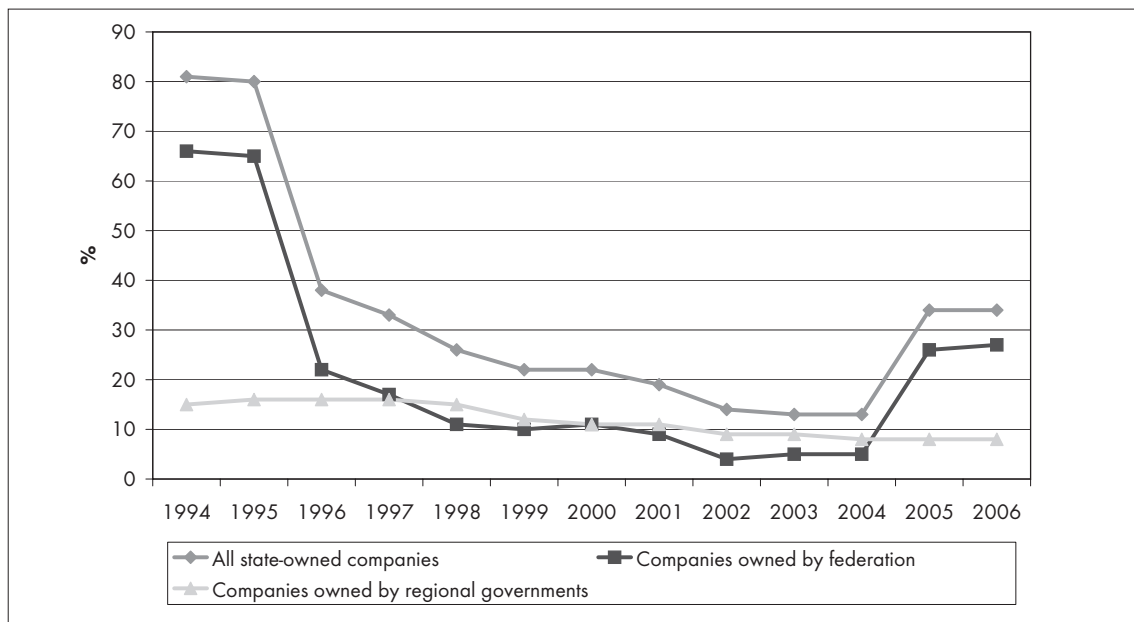
FDI and State Ownership in the Oil and Gas Industry

Graph 1: There should be no foreign investment in this sector of the economy!
(Representative poll of the Russian population and expert poll of state actors, 2005 and 2006)



Source: Russian polling institute VTsIOM

Graph 2: State's share in oil production 1994 – 2006
(% of total oil production)



Source: own calculation based on company data

Table 1: Major foreign investments in Russia's oil industry 1992–2006

Year	Foreign investor and Russian partners	Foreign investment	Value
1992	Conoco (USA) – joint venture with Lukoil (Russia) 2003: + Rosneft (Russia)	50% stake in “Polar Lights” (exploration of Ardalinski Oilfield, Komi and Archangelsk regions)	80 mn USD
1992	BASF/Wintershall AG (Germany) – joint venture with Lukoil (Russia)	50% stake in Volgodeminoil (oil production in the Volgograd region)	na
1995	ARCO (USA) – portfolio investment	8% stake in Lukoil – sold back to Lukoil in 2001	250 mn USD
1995	TotalFinaElf (France) + Norsk Hydro (Norway) + Lukoil (Russia) + Nenets Oil Company (Russia)	Kharyaga PSA (oil production in the Nenets Autonomous Region)	2.5 bn USD over 33 years
1996	ExxonMobil (USA) + Sodeco (Japan) + Rosneft (Russia) 2001: + ONGC (India) – see below	Sakhalin I PSA (offshore oil production in the Sakhalin region)	15 bn USD over 33 years
1996	McDermott (Canada) until 1997 + Marathon Oil (USA) until 2000 + Mitsubishi (Japan) + Mitsui (Japan) + Shell (UK) 2006: + Gazprom (Russia)	Sakhalin II PSA (offshore oil production in the Sakhalin region)	10 bn USD over 25 years
1996	Royal Dutch/ Shell (Netherlands/UK) – joint venture with OAO NK Evikhon (Russia), now a subsidiary of UK-based Sibir Energy plc	50% stake in Salym Petroleum Development N.V. (development of the Salym group of oil-fields in Western Siberia)	Shell approved a budget of more than 1 bn USD
1997	British Petroleum (UK) – portfolio investment	10% stake in Sidanko	571mn USD
2001	ONGC (India)	20% stake in Sakhalin I (see 1996)	225 mn USD
2003	BP (UK) – merger	50% stake in TNK-BP	6.75 bn USD
2003	BASF/Wintershall AG (Germany)	70% stake in Megatron NVK (offshore exploration in Dagestan)	na
2004	ConocoPhillips (USA) – portfolio investment	7.6% stake in Lukoil	1.98 bn USD
2005	ConocoPhillips (USA) – portfolio investment	8.5% stake in Lukoil	na
2005	ConocoPhillips (USA) – joint venture with Lukoil (Russia)	30% stake in Naryanmarneftegaz (development of parts of the Timan-Pechora Field, Komi and Archangelsk regions)	529 mn USD
2006	ConocoPhillips (USA) – portfolio investment	3.9% stake in Lukoil	na

Source: Research Centre for East European Studies, Bremen

Power Politics: Electricity Sector Reforms in Post-Soviet Russia

By Susanne Wengle, Berkeley

Abstract

While efforts to exert greater state control over a number of sectors of the Russian economy have made headlines, the government is currently also proceeding with efforts to privatize large parts of the electricity sector. Since the beginning of attempts to liberalize, effective opposition to these measures has changed: while in the 1990s, a variety of actors who reflected public concerns could negotiate the terms of reform, today influence is limited to a narrow elite of powerful insiders. Crucially, since about 2002 electricity sector liberalization has had the backing of President Putin and far-reaching reforms have been implemented. Nevertheless, it remains to be seen who emerges as the new owners of valuable power plants and if the plans to liberalize wholesale prices by 2011 will be realized in a post-Putin era.

“Power Politics” and the Political Economy of Electricity Sector Reform

The Soviet-era state-controlled electricity monopoly “Unified Electricity System” (UES), whose origins lie in Lenin’s initiative to electrify the newly-founded Soviet Union, is currently being broken up and privatized. Russians old enough to remember the Soviet period are aware of the extraordinary economic, political and symbolic importance of the electricity sector. The liberalization and privatization process has been marked from its onset by conflicts over the immensely valuable assets as well as over the future of electricity provision more generally. Struggles over property rights and resources are never simply battles between reformers and resisters, with one side pushing for change and the other blocking it. The stakes are high for a variety of actors: politicians at different levels of government, household and industrial consumers paying their bills and petitioning for subsidies, utilities negotiating their monopoly position in a changing regulatory environment, reformers with visions of more efficiency and lower prices – to name just a few. Multiple and shifting fault lines shape the conflicts over electricity sector reforms.

In what follows, I will sketch changing patterns of the political economy of electricity sector reform. The utility sector provides an interesting lens for understanding the post-Soviet period for several reasons. First, electricity is an important sector in a country with cold winters and energy inefficient industries; the electricity sector crisis and the proposed reforms have held public attention and generated stormy headlines for years. Second, Russia’s ongoing process of utility sector liberalization is at odds with accounts that portray the country as moving “backward” towards more statism. It also contrasts with widely publicized news in other energy sectors – the “re-nationalization” of Yukos and the ouster of foreign oil companies from key oil and gas fields. An analysis of the patterns of conflict in the electricity sector illustrates that the dynamics of liberalization and privatization in the Russian economy vary across sectors. Finally, “power politics” mirrors some of the larger dynamics of post-Soviet political economy. The effective opposition to reform has narrowed over time and become less representative: in the 1990s Duma deputies, regional governors, regionally-based industrialists and mayors of important cities influenced the trajectory of the sector; today the terms of reform are negotiated among select elites close to the Putin administration.

The Aims of the Reforms: Unbundle, Restructure and Create Markets

The guiding principle of the electricity sector reforms, in Russia and elsewhere, has been to force utilities to operate more efficiently and reduce prices for end users through the introduction of market forces. In order to create markets and competition, electricity sectors are being fundamentally restructured. For much of the 20th century, vertically-integrated state-owned monopolies produced and distributed electricity throughout the world. While the global wave of electricity sector liberalization has taken shape in various ways in different countries beginning in the 1980s, restructuring typically involves undoing the vertically-integrated monopolies, isolating competitive segments from those that are considered natural monopolies. The unbundling of the different parts of the production chain restructures the sector into four segments: generation, transmission, distribution and retail. In generation and retail, reformers hope to introduce competition between independent companies. In transmission and distribution, non-discriminatory access to grids is to be secured by a strong and independent regulator. The privatization of the generation and retail segments of the sector tends to

be a later step in the reforms – although in Russia, privatization of electricity assets started before the restructuring of the sector.

In the Soviet Union, the “Unified Electricity System” was run by the Ministry of Energy and Electricity, a hierarchically-organized bureaucracy directed from Moscow. The current reform process rests on a set of laws that were passed in 2002/2003. Earlier efforts to restructure the sector, starting in 1997, were largely futile. The first important step of the ongoing liberalization was the unbundling of the regional vertically-integrated electricity companies, known as the “Energos” in 2004/2005. Reforms mandate the privatization of the bulk of generation assets by 2008, although the government always planned that hydro-electric generation would remain partly state-owned and nuclear power generation would remain fully state-owned. Prices are in the process of being liberalized, with full liberalization of wholesale prices planned for 2011. Transmission networks will remain state controlled, to be overseen by regulatory institutions that guarantee open and non-discriminatory access to the grid for all generators. Given that Russia had no experience with a privately-owned and marketized electricity sector, legal and regulatory institutions that underpin the sector had to be built from scratch.

The Key Drivers of Structural Change: A Monopoly Orchestrates Its Own Demise

UES itself has been the main driver of the current reforms in Russia. UES and its subsidiaries produce about 70 percent of Russia's electricity, making it by far the largest electricity producer in Russia. It inherited most of the Soviet-era infrastructure in the sector via a 1992 presidential decree, including most power plants, transmission and distribution networks, and many other related functions – repair and maintenance companies, research institutes, etc. Under the leadership of Anatoly Chubais, a highly skilled, though controversial, politician strongly committed to the introduction of market forces, the monopoly provider UES has been orchestrating its own demise.

While UES has been providing the impetus and many of the blueprints for reform proposals, the Duma, Presidential Administration and two key ministries have also been involved in power sector reforms. Victor Khristenko's Ministry of Industry and Energy has been charged with the somewhat vague mandate of the “overall oversight of reforms.” German Gref's Ministry of Economic Development and Trade monitors the macro-economic and social impact of reforms, such as the effect of tariff increases on living standards and inflation rates. At several points the Duma has played an active role in trying to shape the reform outcome. During the planning phase of the current reforms a Duma commission – led by Tomsk Oblast governor Viktor Kress – worked out a competing program to the UES plans, which involved less radical unbundling and allowed the state to maintain control of more generation assets. Nevertheless, the legislation that led to electricity-sector reforms was ultimately based on plans favored by UES, but the legislation ultimately adopted included hundreds of amendments to the law initially proposed by Chubais.

Without the support of the president, the current reforms would not have been possible. Putin reversed his position on utility reform after coming to office. In early 2000, then Prime Minister Putin sharply criticized Chubais for wanting to hike electricity tariffs and joined efforts to remove him from the chairmanship of UES. By the end of 2002, however, Putin had sided with the reformers and by 2003 signed the legislative package that came to serve as the basis for reform. Since then electricity has been grouped with other infrastructure sectors, such as railways, telecoms and financial services that have been liberalizing over the last few years. The faction of liberal reformers among Putin-era elites, including Gref, Kudrin and Chubais, prevailed over opponents of reforms. They justified the need for reform with the logic that liberalization and privatization are prerequisites to attract capital for infrastructure investment, which in turn they present as a necessary condition to reach Putin's 2004 growth target of doubling GDP by 2010.

Who Opposes Liberalization? Narrowing Circles of “Relevant” Opponents

Changing coalitions of various social and economic groups have opposed structural changes in the electricity sector. The most threatening opposition to Chubais' vision of a liberalized electricity market has narrowed over time, and, arguably, become less representative of public opinion. In the 1990s, the most vocal and powerful opponents included Duma deputies, the regional governors and regionally-based industrialists, often the incumbent beneficiaries of the UES empire. In contrast, in recent years the relevant opponents are concentrated closer to the president.

A comparison of the two reforms attempts – one in 1997 that largely failed and one after 2003 that has so far succeeded – reveals how much the actors and the contours of the conflicts in the sector have shifted. UES tried to liberalize and restructure the electricity sector for the first time in 1997. At that time, the fragmentation of bureaucratic authority and the economic crisis inherited from the late 1980s and early 1990s set the context for reforms. The central government in Moscow was struggling to assert political authority and many regional governors managed to control assets and tariff-setting institutions in the electricity sector in the early and mid-1990s. Governors were keeping electricity tariffs low to subsidize regional industrial elites, gain legitimacy among constituencies and assert their independence from the central government. Subsidy arrangements for industrial users varied across regions, depending, for example, on the dominant industry and its relations with the regional governments. In many regions, UES' reform attempts in the late 1990s were thus unwelcome: the reformist vision of what should happen with the sector – unbundling the regional, vertically-integrated monopoly, creating wholesale markets for electricity and other liberalization measures – threatened the basis of the subsidy arrangement among the troika of regional governors, regional electricity companies (Energos) and regional industrialists.

The opponents of reforms thus outnumbered supporters by far. When Chubais took the chairmanship of UES in 1998, a broad coalition of opponents rallied against electricity sector reforms, which included Duma deputies, and influential political actors like Moscow mayor Yuri Luzhkov and Boris Berezovsky, who controlled Russia's most important television network at the time. A coalition of Duma deputies tried to stop UES' plans by removing Chubais: over 60 motions seeking to remove him from the leadership of UES came to a vote between 1998 and 2004 (when the Duma became dominated by United Russia). Communist deputies, opposed to the sale of state property, were joined by other opponents of reforms and those who opposed Chubais personally, such as the Yabloko party.

During the Putin-era centralization of power, the opposition by regional elites, the Energos, the governors and industrialists was broken or co-opted. Since 2004, the Duma has been dominated by United Russia deputies, who have loyally followed the Kremlin's position on infrastructure reforms. The most threatening opponents to Chubais' plans to fully liberalize the electricity sector are now positioned not in the regions or in the legislature, but close to the presidential apparatus. Some key members of the Presidential Administration envisage something like a Gazprom-led energy empire and are not in favor of selling UES' assets to a broader investor base that includes foreign strategic and portfolio investors.

Reforms in the electricity sector are thus still contested, but the fault lines of the conflict are no longer aligned with the opponents and proponents of privatization (although Chubais tends to frame the conflict in this way – calling his opponents supporters of “Goskapitalism”). Instead, the debate centers on the question of whether electricity should be classified as a “strategic sector,” which would provide a rationale to exclude foreigners and give a larger role to Russian companies, including Gazprom. Gazprom has been trying to buy electricity sector assets. It is not yet clear to what extent the enormously powerful gas monopoly will be able to control the sector. (Gazprom presents itself as a profit-oriented private company, but most observers think of it as basically an arm of the government.) State support for vertically-integrated “national champions” that can compete internationally is clearly on the agenda in a number of other sectors. Electricity, so far, is considered an infrastructure sector, where competition and foreign investment are ultimately needed to support the growth of the Russian economy as a whole. Even if Gazprom can secure assets, unlike previous rounds of privatization, it will probably have to offer a high-enough price to outbid other interested parties. Yet, the classification of utilities as a “non-strategic” industry may be short-lived. Opponents to the involvement of foreign investors have successfully used the argument that electricity *is* strategic to keep the St. Petersburg generation company reserved for Russian investors.

Does public opinion matter for the progress of reforms? Following price increases and frequent electricity black outs in some regions, Russia saw a wave of protests against electricity reforms around 2001. Ordinary Russians are clearly vulnerable to changes in the sector: over half (57%) of the respondents to a recent survey by the Public Opinion Foundation (FOM) said that the increase in utility prices has greatly affected their lives, and about a third (33%) said they will have to adapt spending patterns or find additional income sources. Currently, in the run-up to presidential elections, the government is committed to not letting electricity prices increase too quickly; gradual price increases up to full liberalization in 2011 are planned. A gradual approach is to a large extent motivated by a concern about the inflationary effect of price liberalization, though it is probably also partly the result of fears of a popular backlash against sharp price hikes. It remains to be seen if any of the parties in the Duma will articulate opposition to price hikes in the future. Representation under Putin

is in many ways deeply flawed: at a time when opposition to increasing utility prices and the hatred of Chubais and his schemes is at a high, the circle of actors able to shape the reforms in the sector has narrowed to a small group of elites in Moscow.

Prospects for Reforms: Two Open Questions – Who Will Be the New Owners and How Will Price Liberalization Progress?

The structural change in the power sector over the last five years has been substantial: vertically-integrated regional monopolies have been broken up, generation companies are in the process of being privatized, a wholesale market for power has been created with a non-profit organization that administers trading, and lastly, the regulatory institutions of the electricity sector have been re-organized to deal with the marketization of the sector. Finally, since the culmination of Chubais' plan is the abolition of vertically-integrated monopolies, the UES reform plan seeks to liquidate all UES assets by 2008.

It is highly unlikely that the restructuring of the vertically-integrated monopolies into horizontal holding companies will be reversed. And it is probable that the government stake in generation assets will be significantly reduced, which will mean a *de facto* privatization of generation. This is currently happening through the public issue of equity stakes, which are intended to raise capital for future investments, but simultaneously reduce UES' stake – and therefore state ownership – in generation companies. It is also likely that the share of liberalized transactions and contracts on the wholesale markets will gradually increase over the next few years. It is *not* clear at this point, however, who will be allowed to acquire the shares of generation companies – domestic or foreign, industrial or energy interests – and how much competition will be created. Nor is it clear if the government will stick to its current commitment to fully liberalize wholesale electricity markets by 2011.

Conclusion: Who Determines the Price of Power in the Future?

What does this analysis of the electricity sector tell us about the overall direction of reforms in the Russian economy? The circle of relevant opponents to liberalization has changed over time; more precisely, it has narrowed and arguably become less representative. In the 90s, actors who could shape reform policies included Duma deputies, regional governors and regional industrialists. Today, struggles about reform outcomes are mostly fought out among elite actors who either favor state control in the energy sectors or believe that market mechanisms can make energy production more efficient. The question of how the price of power will be determined in the future – by markets, technocrats, politicians or industrial consumers – remains open. It is clear, however, that the outcome of the current large-scale change in the sector will crucially affect the cost of living and the cost of producing and will thus be reflected in some way in every Russian's life.

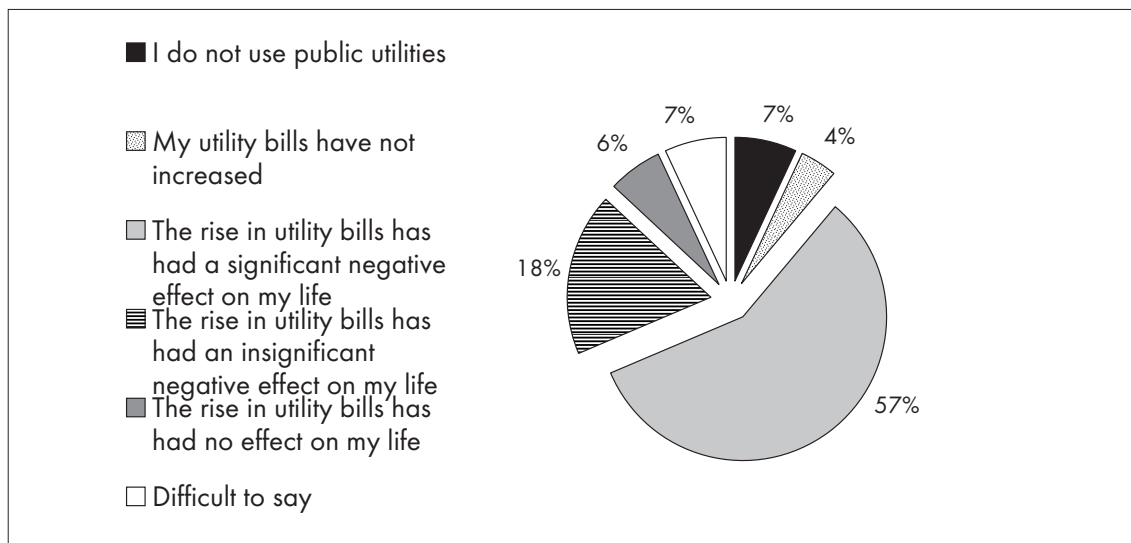
About the author:

Susanne Wengle is a Ph.D. candidate in the Department of Political Science at the University of California, Berkeley.

Suggested readings:

- Peter Rutland, "Power Struggle: Reforming the Electricity Industry," *The Dynamics of Russian Politics II*. Peter Reddaway and Robert Orttung (eds.), Rowman and Littlefield, 2005.
- William Tompson, *Restructuring Russia's Electricity Sector: Towards Effective Competition or Faux Liberalization*. OECD Economics Department Working Paper No. 403. Paris, OECD, 2004.
- Public Opinion research on utility reforms, see <http://www.fom.ru/>

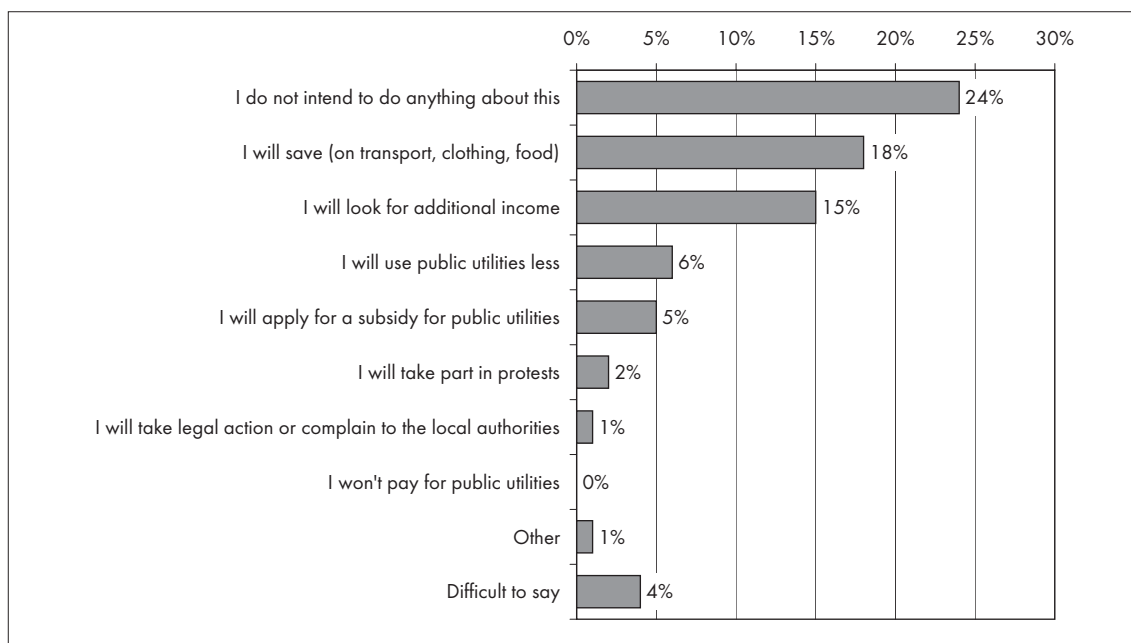
“Have Your Utility Bills for 2006 Grown Compared to 2005? If so, Has the Rise in Utility Prices Had a Significant or an Insignificant Negative Effect on Your Life?”



Source: FOM opinion survey conducted on December 16–17 2006,

http://bd.fom.ru/report/map/projects/dominant/dominan2006/dom0650/domf0650_1/d065010

“What Do You Intend to Do About the Rise in Utility Prices?” (Only Those Who Answered that the Rise in Utility Prices Has Had a Significant Negative Effect on Their Lives)

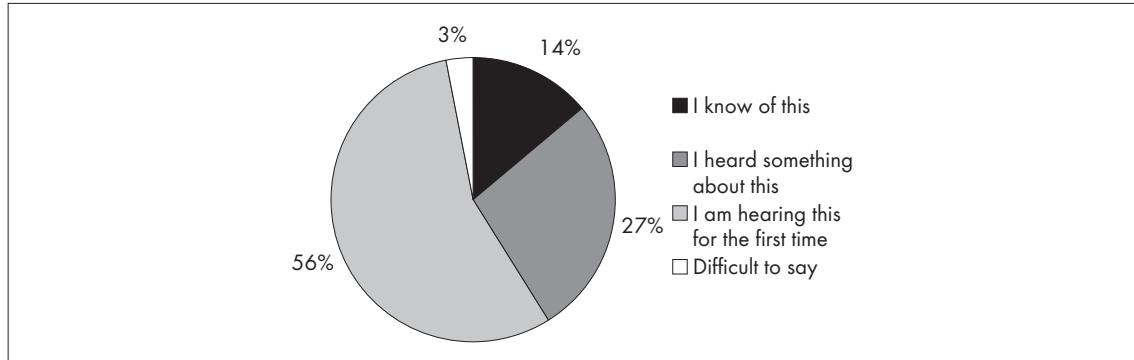


Source: FOM opinion survey conducted on December 16–17 2006,

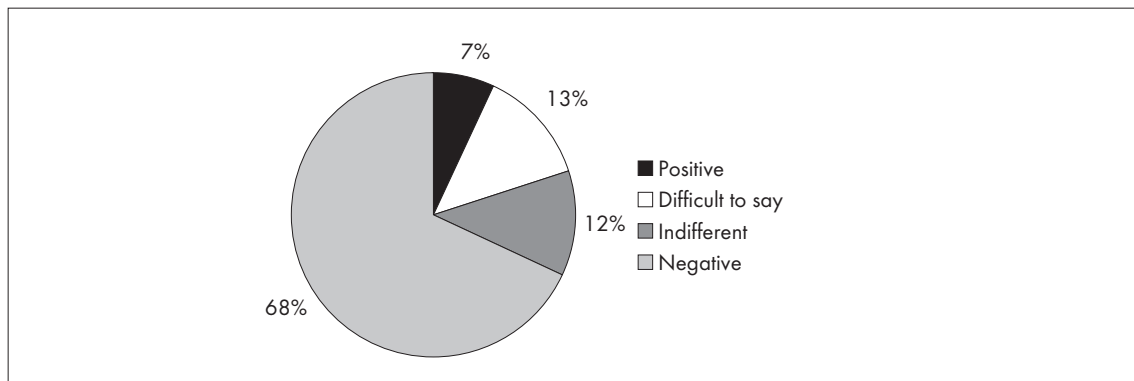
http://bd.fom.ru/report/map/projects/dominant/dominan2006/dom0650/domf0650_1/d065010

Attitudes of the Russian Public towards the Privatization of UES

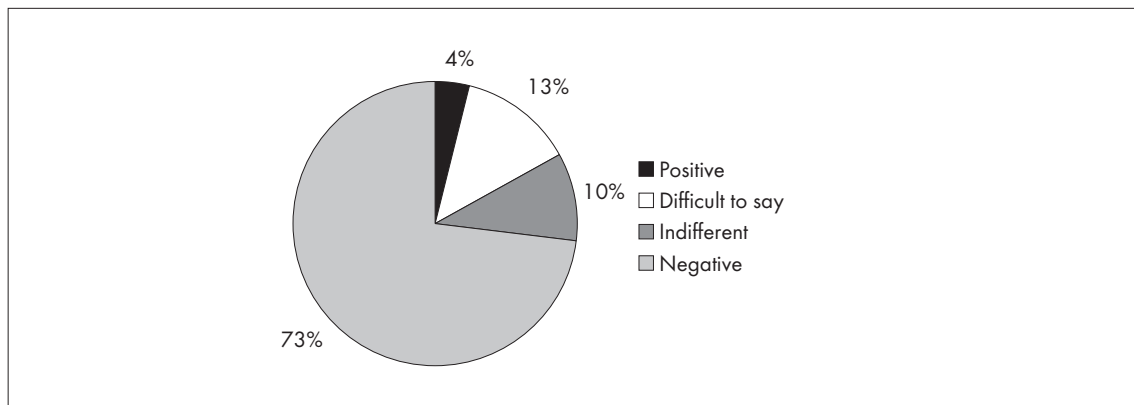
UES is the Largest Russian Company Generating and Transmitting Electricity. Do You Know, Have You Heard, or Are You Hearing for the First Time that the Government is Planning to Reform UES?



UES is a System of Electric Power Stations, Transmission Grids, Distribution Networks and Dispatching Organizations. As Part of the Reforms it is Planned to Transfer Electric Power Stations to Independent Producers and Private Companies. What is Your Attitude towards this – Positive, Indifferent or Negative?



The Proposed Reform of UES will allow the Transfer of Electric Power Stations to Foreign Private Companies. What is Your Attitude towards this – Positive, Indifferent or Negative?



Part II: Russia's New Energy Frontiers

Shtokman and Russia's Arctic Petroleum Frontier

By Indra Øverland, Oslo

Abstract

The need to develop new sources of natural gas to supply domestic and foreign customers is pushing Gazprom into the Arctic. Two key Arctic projects could, at least in theory, become the company's and the country's new mainstays: Shtokman and Yamal. The realistic time-scales, cost frames and sources of financing for these two projects remain highly unclear. It is also unclear whether the projects will be developed in parallel or sequentially. So far, however, there has been far more organizational stir surrounding the Shtokman field, which is therefore the main topic of this article. The Shtokman field is located close to the Norwegian border in the Barents Sea, and the Norwegian oil major StatoilHydro has been selected as one of the two main foreign partners for the project. The development of the project therefore has implications for Russian–Norwegian relations in the north, which are also discussed in this paper.

Russian Gas Production and the Eurasian Energy Balance

Events in Ukraine in January 2006 and Belarus in January 2007 fuelled worries in some circles about Russia's reliability as a supplier to European markets. More recently, concerns have shifted to whether Russia will be able to supply its customers, even if it wants to. The supply crunch is envisaged as occurring sometime between 2010 and 2012. These fears revolve around Western Siberia's Nadym Pur Taz Region and its three super-giant fields: Medvezhe, Urengoy and Yamburg. Over 90 percent of Russia's natural gas is extracted in Nadym Pur Taz, but production in the region is falling fast. The fields have all been producing for over 20 years (37 in the case of Medvezhe), and injection techniques applied during the Soviet period to boost output have shortened their life span and steepened the production decline. At the same time, Russia's economy is expanding and natural gas remains heavily under-priced. As a consequence, domestic consumption is increasing. Foreign customers and Russian pundits are left wondering where the gas is going to come from in the future, and the simplest answer is Shtokman and/or Yamal.

The Russian Arctic and World Energy Supplies

In a widely cited survey, the US Geological Survey estimated that up to 25 percent of the world's undiscovered oil and gas may be located in the Arctic. What is less often noted is that a large part of these resources are located in the Russian part of the Arctic. This is not just because almost half of the Arctic littoral is Russian, but also because the seabed along Russia's Arctic coast includes some of the biggest finds ever in the Arctic, some of the most promising areas, and some of the least explored areas. Thus, Shtokman and Yamal are the gateways to an Arctic Russian adventure that could satisfy a substantial part of the world's future oil and gas demand.

Shtokman versus Yamal

Shtokman is located in North-Western Russia, close to the Nordic countries. Yamal is located further east in the Asian part of Russia. Choosing between the two projects therefore has implications not only for Russia's internal economic geography, but also for the proximity and linkages to the Nordic countries, the EU and overseas markets (for LNG).

A commonplace perception of the Russian natural gas industry is that it is relatively well-equipped to build pipelines and carry out other operations onshore, its main tasks during the Soviet period. It is also thought that, whether the Russian actors admit it or not, the industry is woefully inexperienced and incompetent when it comes to offshore operations. This shortcoming has occasionally been cited as a reason why Russian industrial actors would prefer Yamal to be given priority over Shtokman.

In a seminal article from 2006 on Russia's Arctic petroleum sector, Arild Moe casts the choice between Shtokman and Yamal as battle between different groups within Russia's petroleum sector and within Gazprom. At the time, it appeared that the West Siberian lobby had won in pushing for Yamal and that it was unlikely any Western companies would be invited to participate in the project at all. Shtokman's current advantage over

Yamal, however tenuous, probably does not indicate that the Western Siberian lobby has finally been defeated, nor does it reflect a particular urge to cooperate with Western countries. Rather, it could be an implicit recognition that it is better to go for a project where the capital, technology, and (not least) organizational skills of Western companies can play a central role. Bringing in Western partners may help the project move forward, and if it does not, there will be more companies to share the blame.

Yamal

The Yamal Peninsula, along with the Kara Sea, into which the peninsula juts, likely holds over 30 trillion cubic meters of gas, enough to supply the whole world for a decade. Like Shtokman, however, Yamal involves daunting challenges. Railways and proper roads are non-existent. Melting and refreezing of the ground on the peninsula pose even more daunting challenges, since these changes may literally undermine transport infrastructure, gas extraction and treatment facilities, and living quarters built for workers. Any onshore gas extraction would infringe on the large-scale reindeer herding operations of the indigenous peoples of the region. Finally, the cost of fully developing the Yamal fields would be on the order of hundreds of billions of dollars and could take up to 50 years.

On the other hand, Yamal is relatively conveniently located in relation to Russia's existing pipelines from Nadym Pur Taz to its domestic and foreign markets. The accelerated ice melting currently observed in the Arctic Ocean, which far outpaces the estimates of the relatively conservative International Panel on Climate Change, also opens interesting opportunities for LNG/marine transportation and for the offshore fields.

While Yamal is bigger and in many ways more attractive to Russian actors than Shtokman, it is the latter that seems to be progressing fastest at the moment – however unpredictable that progress is. The rest of this article therefore focuses on Shtokman.

Shtokman

The Shtokman gas and condensate field is the largest offshore gas field in the world. It was discovered in 1988 and was recently re-estimated by Gazprom to contain 3.8 trillion cubic meters of gas and 31 million tons of condensate (previous estimates had usually been on the order of 3.2 trillion cubic meters of gas). It is located 555 km north of the Kola Peninsula, in the Russian part of the Barents Sea. Although smaller than Yamal, Shtokman contains more than twice as much natural gas as Canada's total known reserves.

For several years after they were included in a Gazprom shortlist, the oil companies Chevron, ConocoPhillips, Hydro, Statoil and Total vied to acquire ownership stakes in the Shtokman field. In Norway, where the project has received a lot of attention, the result was a rollercoaster of rising expectations and subsequent disappointment as uncoordinated statements and accidental signals from the Russian side fuelled rumors and media speculation on the Norwegian side that a decision was imminent, or that one or both of the Norwegian companies might be awarded a significant stake, or that the game was over and no foreign companies would be included. In their endeavor to join the project, the two Norwegian companies had extensive support from the Norwegian government and diplomatic apparatus.

In July 2007 it was announced that the French oil company Total had been awarded a 25 percent stake in the joint company that is to develop the first phase of Shtokman. It had long been clear that Gazprom would retain 51 percent ownership, so the final competition for the remaining 24 percent was between StatoilHydro and ChevronTexaco. To some extent this was a competition between Norwegian technology and good-neighborly relations in the North on the one hand, and US markets and big-power partnership on the other hand. StatoilHydro won the last 24 percent of the field on 24 October 2007.

It is important to understand the nature of the legal solution chosen for the inclusion of foreign companies in the Shtokman project. Total and StatoilHydro have not been awarded ownership of the field itself, but of parts of the company that will develop the field. This has resulted in a discussion about whether the two companies can count Shtokman as part of their reserves. The difficulties of replacing reserves is the main driver for Western companies to become involved in the Russian petroleum sector in spite of the difficulties already experienced by foreign companies in projects such as Sakhalin-II, Kovykta and Kharyaga. Therefore Total and StatoilHydro are fighting hard for Shtokman to be fully recognized as part of their reserves by international financial markets and on international stock exchanges.

Another important aspect of the deals that have been made is that they are more like options than ownership stakes. During the coming year or two Gazprom and the two foreign companies will attempt to hammer out the technical and financial details of the Shtokman project, which are far from clear at the moment. In 2009 Total and StatoilHydro are to decide whether they want to make use of their right to a quarter each of the project under the conditions which they must negotiate with Gazprom. In spite of the symbolic and political weight of the project and its importance for international cooperation and European energy security, this will ultimately have to be a business decision. It is worth remembering that perhaps the most disruptive point in the bumpy negotiations leading up to the decision to include Total and StatoilHydro was the distribution of the financial burden and risks between the Russian and Western sides. There is no guarantee that Total and Statoil, as the company will then most likely have been renamed, will find the terms offered sufficiently attractive when a decision is to be made in 2009.

The Importance of the Shtokman Field

The Shtokman field is now officially slated for production in 2013, though few believe it will be possible to stay within this timeframe or even near it. Should the project nonetheless develop according to schedule, it would both be the biggest energy-related event and the most important international cooperation project in northern Europe in the decade 2010–2020. There are several reasons for its importance:

(1) The Shtokman field theoretically contains enough gas to satisfy the entire consumption of the EU for seven years. In addition to Shtokman's direct importance for European energy supplies and security, it is important for Europe because it includes the French oil company Total, and because it involves cooperation between Europe's biggest and third biggest external suppliers of natural gas – Russia and Norway (which jointly supply 65 per cent of EU imports). Russia and Norway are also respectively the world's second and third biggest oil exporters, and from this perspective the cooperation is also an interesting development in the global petroleum sector. It should not, however, be interpreted as a precursor to a Russian-Norwegian led gas cartel, as all of Norway's main political parties seem to be firmly committed to avoiding the politicization of Norwegian energy exports.

(2) Shtokman has widely been seen as driver of Russian–Norwegian cooperation across the border and of a joint Russian-Norwegian regional industrial boom in the High North, including northern Sweden and Finland. Expectations have run particularly high in northern Norway, where hopes for a petroleum boom with Shtokman at its centre have injected dynamism and optimism after decades of Cold War confrontation and unemployment in the fisheries. One of the most optimistic visions for the development of the region includes the so-called "Pomor Zone," a joint Norwegian-Russian industrial and economic cooperation zone straddling the border near Kirkenes.

(3) Norwegian-Russian cooperation in the development of the Shtokman field has occasionally been cast as a possible precursor to a solution of the Norwegian–Russian border dispute in the Barents Sea. It is widely thought that the disputed area may include large petroleum resources, although the two parties have agreed to place a moratorium on exploration in the area. Due to the sensitivity of the topic, it is not possible to acquire reliable official information about the border negotiations, but several possible solutions have been discussed by people outside the negotiation process. One of these assumes that successful Norwegian-Russian cooperation on Shtokman could provide a precedent for a solution of the border dispute involving extensive cooperation in the formerly disputed area. According to this solution, the parties would first have to agree on a new borderline in the disputed area. Once the border were decided upon, the resources in the Norwegian part of the formerly disputed area could be owned 51 percent by Norway, and 49 percent by Russia, whereas those in the Russian part of the formerly disputed area could be owned 51 percent by Russia and 49 percent by Norway. Obviously such a solution would require a high degree of cooperation and coordination between the two countries, which could – it is thought – be demonstrated through successful cooperation on Shtokman. Due to the closed nature of the negotiation process, it is not possible to ascertain whether such a solution is on the table. But the fact that it is discussed outside the negotiation process does say much about the importance for Norwegian-Russian cooperation ascribed to Shtokman.

(4) Developing the Shtokman field also involves making difficult choices about the marketing and transportation solution for the gas. The three main options are: (a) to build a liquefaction plant on the coast of the Kola Peninsula (most likely at the derelict fishing village of Teriberka) and export the gas as LNG by ship, (b) to build a pipeline from Murmansk to the Petersburg area and connect it to the Nord Stream pipeline going to

Germany or (c) to lay a pipeline southwards through the Norwegian part of the Barents Sea and halfway down the Norwegian coast to connect with the Norwegian pipeline network. To some extent decision-making about Shtokman is thus also decision-making about whom Russia is going to trade and cooperate with internationally. Option (a) – exporting the Shtokman gas as LNG – is often thought of as synonymous with exporting it to the US, but the LNG could also be shipped to Europe. One of the advantages of an LNG solution is therefore that it gives some flexibility as far as the export market is concerned, although buyers would obviously need the appropriate terminals for receiving the LNG. So far it seems the preferred solution is (a) (LNG), later to be combined with (b) (a pipeline connection with Nord Stream). Solution (c) (connecting Shtokman with the Norwegian pipeline network) may be mostly wishful Norwegian thinking. Although it could make sense in some practical respects, it is hardly a politically or economically attractive option for Russia.

Lessons Learned from the Shtokman Experience

Above all, the many phases of hope, ambition and disappointment in Western attempts to become involved in Shtokman illustrate how Western actors often intensively debate cooperation with Russia on the basis of all kinds of assumptions and expectations, without in fact engaging properly with significant Russian actors or being in touch with the reality on the Russian side. In this respect it is interesting to compare Shtokman with Norway's Integrated Management Plan for the Barents Sea, which also involves great ambitions for involving Russian actors in environmental processes and solutions that rest on uniquely Norwegian and Western perspectives and assumptions.

The official reason most often mentioned by Russian actors for the initial decision to exclude all foreign actors from the Shtokman project was that none of the suitors made sufficiently attractive offers. If one takes this argument seriously, the Shtokman case indicates that ultimately financial considerations and profit may be the main driver in Russian energy cooperation with Western countries.

On the other hand, the politicization of the Shtokman negotiations, with multiple meetings between Russian and foreign politicians and high-level state functionaries, indicates that while business is important for the Russian side, business is controlled by politics. Western actors who want to cooperate will need the support of sufficiently strong politicians on the Russian side.

The development of the Shtokman field provides yet another illustration of the importance and sensitivity of strategic resources to the Kremlin – which is determined to stay in control. These Kremlin priorities are also mirrored in other developments in Russian-Western energy cooperation, where Russia has been taking back control from Western companies that bought into Russian fields in the 1990s. On the other hand, because the legal-institutional infrastructure for the Shtokman field is being developed under the full control of a sober Kremlin from the outset, cooperative relations may prove more stable, and it will be more difficult for the Russian authorities to unilaterally blame problems on Western partners, though the pain of industrial delays and cost overruns may provide strong incentives to attempt to do so.

All discussion about Shtokman and other major petroleum developments in the North is generally disconnected from the EU's Northern Dimension, Barents cooperation, the Arctic Council and other multilateral frameworks for cooperation. One could get the impression that cuddly multilateral cooperation is acceptable, as long as it does not deal with the really big issues, which are handled in bilateral or narrow ad hoc multilateral settings. This situation may in particular be due to Russian preferences and Russia's image of itself on the international stage (not as one country among others, but as an exceptional case) or to hardcore Russian realism in international relations. In that case it may be questionable whether the West in the short run can really lull Russia into full-hearted participation in a multilateral framework such as the Energy Dialogue, the Northern Dimension or other multilateral options that are available, while buying its resources at the bargain prices that importing countries expect.

About the author:

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All Quiet on the Eastern Front...

By Nina Poussenkova, Moscow

Abstract

A priority of Russia's energy policy is to diversify oil and gas exports, which are currently focused on the stagnating European markets, by entering the Asian energy market and accessing consumers as far away as the US. Since the fields of West Siberia are all mature and declining, Russia needs to develop new oil and gas fields in East Siberia and the Far East, which are located closer to potential customers in Asia. The imperative to "turn east" is also determined by Russia's urge to revitalize its eastern territories and is thus in line with a broader national security agenda to develop a region which was long neglected. Geopolitically, Russia needs to build new relations with China, India and other countries of the Asia-Pacific region (APR). Therefore, an eastern energy strategy will have to cope with a tangled web of economic, social, political and geopolitical considerations.

Eastern Oildorado

East Siberia and the Far East have 13.5 percent of Russia's total initial oil reserves and 19 percent of gas reserves. Resource estimates for East Siberia and the Far East vary between 15 billion and 22 billion tons of oil and 35 thousand cubic meters (tcm) and 61 tcm of gas. The lion's share is located in remote Arctic regions and will not be in demand for 20–30 years. Russia's east is poorly explored: the average density of drilling there is 2 meters of deep wells per 1 sq km, while the Russian average is 23 meters per 1 sq km. Since all discoveries were made in the pre-1991 socialist era, modern prospecting technologies might identify many more reserves. For example, Petromir booked the major Angaro-Lensk gas field in the Irkutsk Region in 2007.

Production estimates vary enormously. The *Energy Strategy of Russia up to 2020* forecasts 3 million tons/year (mt/yr) of crude under a critical scenario by 2020, and 80 mt/yr under an optimistic scenario. Given their enormous range, these predictions seem closer to educated guesses than data-based conclusions.

This issue has political connotations, since competing governmental agencies offer different views. The Ministry of Natural Resources is optimistic, anticipating production of 30 mt/yr of oil and 50 bcm of gas in the nearest future, while railroad representatives doubt that crude output in East Siberia will increase from the current 0.5 to 30 mt by 2011. Their skepticism is determined by a desire to promote oil deliveries to China by rail rather than through new pipelines.

Oil in East Siberia is sweet and light and could be sold at a higher price than the traditional Urals export blend. Additionally, major eastern gas fields contain valuable products for the gas chemical industry. Despite these attractions, oil and gas exploration and production in this greenfield province will be very expensive because of harsh climatic conditions, difficult geology and lack of infrastructure.

Russian academician Alexei Kontorovich from the Siberian Branch of the Russian Academy of Sciences estimates that developing east Siberian oil will require an investment of \$87 billion. When expenditures for creating social infrastructure and general-purpose industrial facilities are factored in, the sums become awe-inspiring. The government intends to shift the financial burden of creating the eastern petroleum industry onto the companies, and, despite the windfall oil revenues that Russia enjoys today, its domestic funds might not be enough.

Though financially the eastern petroleum project seems too challenging, it is not a purely commercial endeavor since it has serious political implications. The problems that the region faces jeopardize Russia's security, and they stem both from the socialist legacy and the turbulent transition period.

Territory of our Discontent

East Siberia and the Far East are plagued by economic and social problems, including slow growth, the obsolescence of fixed assets, a "colonial" type of development, underinvestment in production facilities, an ongoing energy crisis, environmental degradation, general poverty, a great social disparity among regions, a lack of transportation infrastructure, and the absence of trunk pipelines to move oil and gas.

Demographic problems in the East threaten Russia's national security. In 1989–2002, the population of the Far East declined by 16 percent, compared to 4 percent for Russia as a whole. The average population density is 2.1 persons per sq km in East Siberia and 1.1 in the Far East. There is an acute shortage of manpower combined with illegal immigration from neighboring countries. The situation particularly deteriorated after 1991, when Moscow largely forgot about East Siberia and the Far East.

All the King's Horses, all the King's Men...

Now Moscow is changing its attitude to its "eastern stepchild." In 2006 President Vladimir Putin described the situation in the Far East as "a threat to national security" and stressed the need "to invest money in the Far East." As a result, the federal government is now compiling a targeted aid program entitled *The Development of the Far East and the Trans-Baikal Region up to 2013*.

The Kremlin is taking practical steps to transform these backward territories. First, the government is combining several of the regions in this part of Russia, creating fewer and larger entities, presumably to strengthen Moscow's control over them.

Second, the Kremlin is using the power it took in 2004 to appoint governors to carry out a major personnel reshuffle. The result is the appointment of a new regional leadership with either a St. Petersburg background or unquestioned loyalty to the Kremlin.

The third line of activities involves engaging big business in the solution of the region's social and economic problems through the fashionable use of public-private partnerships.

Simultaneously, the government is promoting oil and gas development in the East through fiscal innovations, as additional tax benefits are required to attract investors. Changes in the Russian tax code concerning differentiation of the mineral production tax are being considered, as well as tax holidays for greenfield territories, including in East Siberia and the Far East.

Also, efforts to modernize the Subsurface Law are underway; amendments to it are being discussed that are largely aimed at limiting the involvement of foreign majors in the development of Russian strategic deposits.

All the eastern challenges are clearly reflected in the problems of the East Siberia – Pacific Ocean (ESPO) oil pipeline, which should carry oil from East Siberia to the coast. Because this is a project where political considerations have so far prevailed over economic feasibility, ESPO is often compared to the Baikal-Amur Mainline (BAM), a gigantic railroad project that became a stillborn child of socialism. The construction of ESPO's first stage will probably be delayed, mainly because the pipeline was rerouted by some 400 km north of Lake Baikal. The deadlines for the second stage have yet to be determined. According to Transneft, everything depends on how quickly the oilmen can explore and develop eastern oil fields.

The risk factors for ESPO are significant. Since the proved reserves of East Siberia are relatively small, no one knows the true size of the resource base in the region. Another problem is connected with ESPO's competition with the Russian Railways, an important transporter of crude in Russia's east. Some groups in the government wish to revitalize BAM, which can be used to transport oil.

Also, the price tag for the first stage of the project has already gone from \$6.65 billion to \$11 billion because of the longer path for the rerouted pipeline and higher costs. The greater outlays will result in higher tariffs for transporting the oil, which raises questions about whether ESPO will be viable commercially.

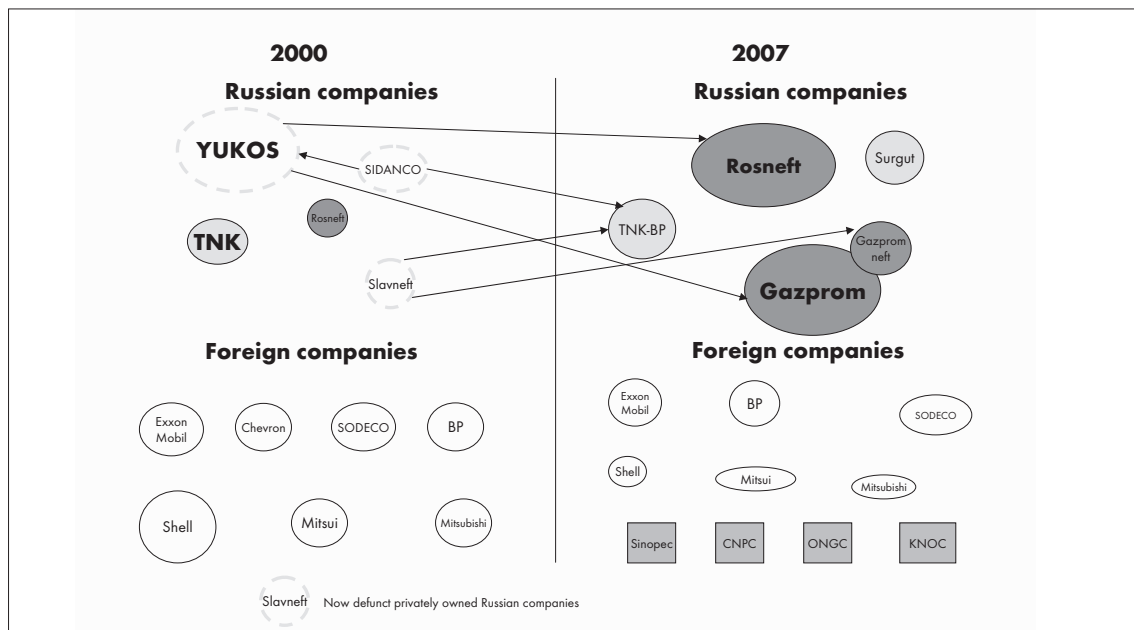
Who is the Mightiest of Them All?

Until recently, state companies were poorly represented in the East, where private actors dominated the petroleum landscape. Gazprom had no presence in the region, while Rosneft, though owning eastern assets, was too weak to be considered a serious player.

The desire of the Kremlin to control the strategic sectors of the economy will greatly affect the development of East Siberia's resources. The government believes that the monumental task of revitalizing the region and forging energy ties with Asia can be entrusted only to loyal companies. Therefore, Moscow is creating condi-

tions for displacing private actors in this territory with state-owned corporations and for limiting the role of global majors. Figure 1 overleaf shows these changes in graphic form.

Figure 1. Key Eastern Players, 2000 – 2007



Gazprom

Russia's natural gas monopoly is quickly founding its eastern empire. In 2005 it acquired Sibneft, which owns licenses on Sakhalin, Chukotka and in the Bering Sea. Its new subsidiary has 50 percent of Slavneft, which holds licenses in Krasnoyarsk Krai, and Gazprom hopes to acquire the other half of Slavneft, which currently belongs to TNK-BP.

Gazprom made an important step forward by joining Sakhalin-2 as a majority shareholder, and thus entering the LNG market. During the course of 2006 the authorities threatened to shut Sakhalin Energy, the company running Sakhalin-2, because of alleged environmental violations. Those problems ended in December 2006 when Gazprom acquired 50 percent + 1 share in the company.

In 2007, Gazprom finally gained control over Kovykta. Under pressure from Gazprom and the state authorities, who complained about license violations, TNK-BP agreed to sell its share of RUSIA Petroleum, which held the rights to develop Kovykta. (Now it seems that Gazprom would like to acquire a stake in TNK-BP itself, rather than simply take over this project.)

With its purchase, Gazprom started preparing a new plan for developing Kovykta. This plan assumes that commercial production will begin in 2017 and the gas produced will be sold domestically to cover the potential shortage of blue fuel in Russia, though a certain proportion will likely go to China. Presumably, Gazprom is not interested in commissioning Kovykta more quickly since the project could divert funds from higher priority plans to develop fields on the Yamal Peninsula.

Gazprom's success in putting the field on stream will hinge primarily on the results of negotiations with China, the leading potential foreign market for Kovykta gas. These talks are now deadlocked because the two sides cannot agree on a price. Gazprom claims this failure was caused by the generous terms of the previous ExxonMobil-China National Petroleum Corporation (CNPC) agreement on Sakhalin-1 gas deliveries.

Gazprom has further ambitions: it has announced plans to acquire the Chayandinsk field in Yakutiya, with 1.24 tcm of gas reserves, and blocks of Sakhalin-3 uncontested. Making these acquisitions will require changes in Russian legislation.

Gazprom's role in the east is unique since in 2002 the government appointed it coordinator of the state's eastern gas policy and instructed it to develop the Eastern Gas Program. This work was completed only in 2007 after numerous revisions. Even the latest version of the program contained 15 different scenarios for

developing eastern hydrocarbon fields through 2030. Investments in the Eastern Gas Program to 2030 would be \$60.1 billion, and gas production is envisaged at 27 bcm/yr by 2010, and at 162 bcm/yr by 2030.

The results of Gazprom's initial five-year effort leaves much to be desired. According to one government representative, the versions of the program were selected "under conditions of equal economic inefficiency." It would probably be too optimistic to expect that this document will help achieve a real breakthrough in gas industry development in East Siberia.

In 2006, Gazprom further entrenched itself in the region by signing a protocol with CNPC on deliveries of up to 80 bcm of gas starting in 2011. Consequently, Gazprom is developing the Altai pipeline project, which is designed to pump to China 30 bcm/yr of gas from the Nadym-Pur-Taz region, whose reserves may be insufficient for this purpose. As a result, East Siberian gas might be needed to fill the pipeline.

Through its aggressive asset grabbing and the use of administrative resources, Gazprom turned from a virtual player with high authority, but no actual assets, into a formidable force in the region.

The key question is: Can Gazprom provide enough gas to meet its commitments to Europe, satisfy the growing domestic demand, and supply China?

Rosneft

Rosneft is Russia's state-owned oil national champion. Having acquired the bulk of YUKOS's oil assets, Rosneft was transformed from a minor player into the undisputed leader of the domestic oil industry.

East Siberia and the Far East are the zone of Rosneft's strategic interests. It has a strong presence in the Far East: its subsidiary Sakhalinmorneftegas is involved in the Sakhalin-1, -3, -4 and -5 projects. Sergei Bogdanchikov, Rosneft's CEO, originally headed Sakhalinmorneftegas, and this region is psychologically important to him.

In addition to Sakhalin, Rosneft established a foothold in East Siberia. In 2003, it acquired Vankor in Krasnoyarsk Krai, defeating Total and YUKOS, companies that both coveted the field. In 2005 Rosneft announced that Vankor's recoverable reserves had increased to 250 mt through additional exploration.

In addition to expanding its reserve base, Rosneft fought for Vankor because it could not cede this field to a foreign major. Vankor is important since it represents a potential new channel of oil export not controlled by the state. Vankor oil can be shipped along the Northern Sea Route, bypassing Transneft's bottlenecks, and diversifying markets. Also, sending the oil north would avoid mixing the high-quality Vankor crude with the lower quality Urals blend.

However, after studying several transportation options, Rosneft decided to pump the Vankor crude to ESPO, because without Vankor it will be impossible to fill the pipeline. Thus, the patronage of the Kremlin sometimes requires Rosneft to sacrifice profitability for political objectives.

Filling the ESPO line has become an important priority for Rosneft. In 2005 the company further strengthened its eastern positions by buying 25.9 percent of Verkhnechonskneftegas, license holder for the Verkhnechonsk field. Rosneft needs this oil for ESPO, which after its rerouting passes near Verkhnechonsk. In 2007 it acquired eastern assets of YUKOS, including in the Yurubcheno-Tokhomsk Zone in Evenkiya, also a potential supplier of ESPO.

Rosneft's downstream positions in the East are strong and expanding: initially, it owned the Komsomolsk refinery, two petroleum product distributors and three export terminals. Then, Rosneft acquired all YUKOS refineries in 2007, including Angarsk and Achinsk in East Siberia, and its eastern fuel stations. Also, Rosneft intends to build a 20 mt/yr refinery at the end point of ESPO by 2012 – in line with Russia's intentions of shifting from exports of crude to higher value-added products.

Geopolitically, Rosneft now plays an important role in Russia's relations with China, South Korea and India. Rosneft opened the door to Russian oil for the Chinese – in 2005, Rosneft invited Sinopec, with a 25.5 percent share, to conduct and co-finance exploration of the Sakhalin-3 Veninsky block. Then, in mid-2006, Vostok Energy JV was established between Rosneft (51%) and CNPC (49%) to work in Russia's upstream market, and in 2007, it won an auction for two fields in the Irkutsk Region, close to the ESPO route. Another Russian-Chinese JV in China will deal with refining and marketing.

Rosneft has a special relationship with China, as the Chinese banks provided \$6 billion for Rosneft's Yugansk-neftegas acquisition. Chinese oil companies aspired to player status in Russia for many years, but their achievements were practically nil before the Yugansk deal, which changed their fortunes.

The Chinese further strengthened ties with Rosneft by becoming its shareholders. Their successes may be attributed to the socialist legacy of both countries, which makes it easier for the Chinese to understand the specifics of doing business in Russia. Also, the Chinese not only try to access Russia's upstream, but let Rosneft work in their downstream market as well.

South Korea is another country with which Rosneft does business by allowing the Korea National Oil Company (KNOC) to participate in the West Kamchatka shelf exploration on a 60% : 40% basis.

India, through its state-owned Oil and Natural Gas Company (ONGC), is also an important Rosneft partner. Their cooperation started in 2001 on Sakhalin-1. Then, in 2007, Rosneft and ONGC signed a memorandum, under which the Indians would access Russian offshore fields, in return, paying for their development and admitting Rosneft to the Indian downstream market.

Gazprom and Rosneft: Bitter Friends

In the past, Rosneft was too weak to compete with the almighty Gazprom. Recently, however, it has emerged as its rival on a variety of fronts – and is winning in many instances.

This rivalry will probably intensify in the East. First, there might be further disputes about exports of Sakhalin-1 gas. Despite the credibility provided to Sakhalin-1 by Rosneft's involvement, the project faces serious obstacles created by Gazprom's desire to control its gas exports. Therefore, when in 2006, Exxon Neftegas signed an agreement with CNPC to build a 8 bcm/yr pipeline to China, Gazprom strongly resisted the plan.

In 2007, Gazprom demanded that Sakhalin-1 gas should be used to gasify eastern regions and not exported, though this PSA project can export gas independently of Gazprom. Gazprom's demand is not dictated by its concern for the Russian regions, but its desire to eliminate competition with ExxonMobil, since an agreement with the Sakhalin-1 shareholders permits the Chinese to lower prices in negotiations with the concern.

Rivalry between Gazprom and Rosneft aggravates instability in the domestic oil and gas industry (and hinders development of Russia's East). Nevertheless, the two competitors ensure a de facto system of checks and balances.

Since Gazprom and Rosneft have radically strengthened their positions in Russia's East, it has become a testing ground for the new state petroleum policy. "Russification" and "etatization" of the domestic oil and gas sector will probably continue. Global majors will be delegated the role of junior partners: thus, Rosneft permitted BP to join Sakhalin-4 and Sakhalin-5 with 49 percent. Up to now Sakhalin-1 and Sakhalin-2, both managed by foreigners, were the only eastern projects that showed real progress; and global majors remain the essential providers of technology and know-how.

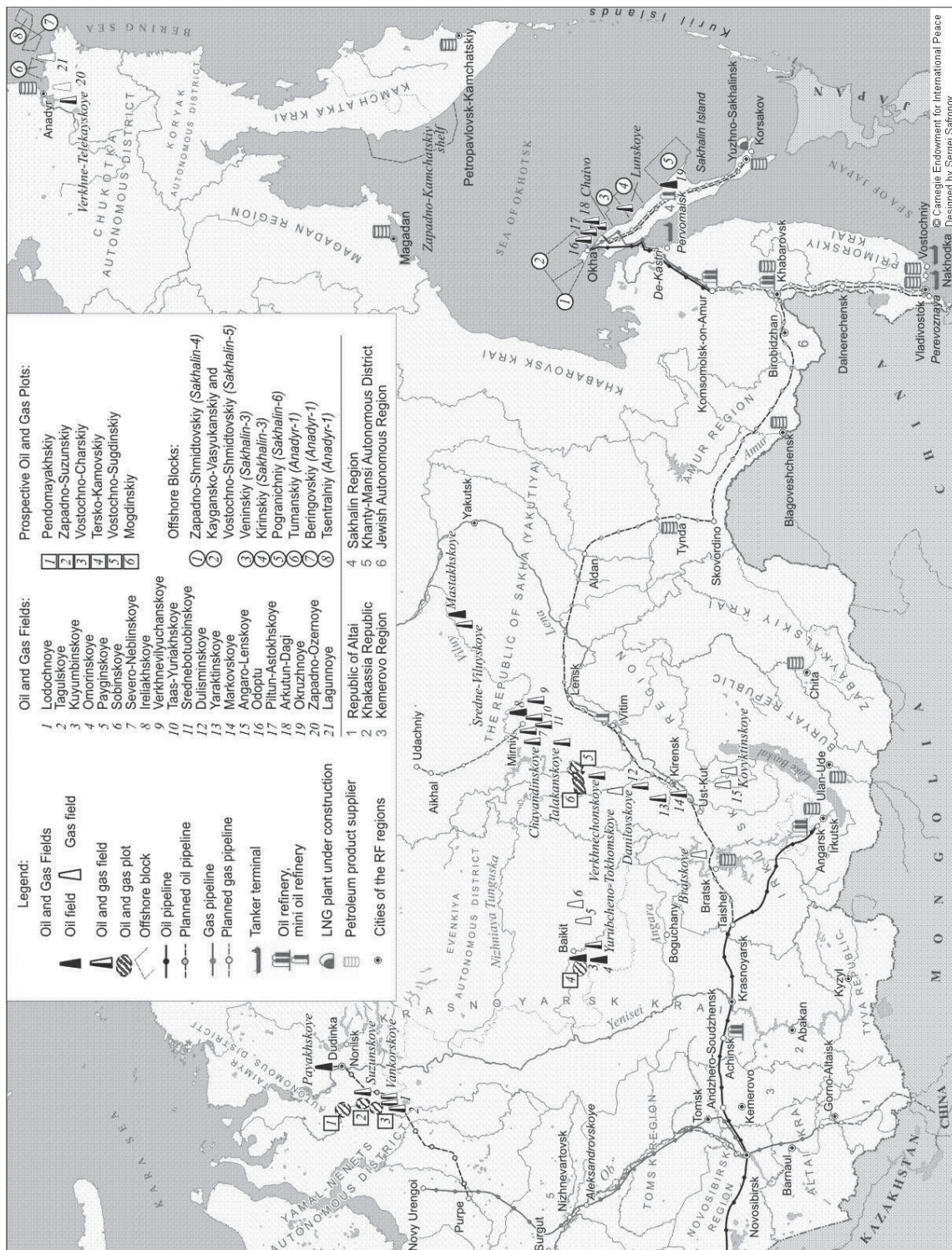
Private companies will be further displaced by Gazprom and Rosneft, probably not to the benefit of Russia's East. Gazprom has its own corporate agenda that may differ from the national interests and hinders the development of some eastern regions. Rosneft might be spread too thin after its recent acquisitions to undertake major projects. Also, the state commissions them to perform additional social and political functions, which might further undermine their efficiency.

In sum, the development of Russia's East and efforts to work in the Asian energy markets face formidable challenges. Major breakthroughs in creating an eastern hydrocarbon province appear unlikely in the immediate future. Most likely, sporadic progress will be achieved in easier-to-implement projects where national objectives coincide with the corporate interests of Gazprom and Rosneft.

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Russian Oil and Gas Fields



Regional Influence in Oil and Gas Development: A Case Study of Sakhalin

By Elana Wilson Rowe, Oslo

Abstract

The offshore oil and gas reserves off Sakhalin Island in Russia's Far East are one of Russia's more promising locations for new field development and by 2010 Sakhalin's oil production is expected to account for 7 percent of the demand in the Asia-Pacific region. Not surprisingly, Sakhalin regional authorities seek to ensure a level of regional control over offshore oil and gas development, along with the corresponding economic benefits, despite a relatively weak position in light of Moscow's efforts to centralize authority. This article examines ways in which regional administrations can and do influence the process of offshore oil and gas development in the Russian federation through a case study of the Sakhalin Oblast Administration. Regional authorities on Sakhalin have managed to retain an influential role for themselves via: (1) encouraging onshore infrastructure for offshore oil and gas operations; (2) working to smooth the way for development at the federal level; (3) insisting on local content and contracts when possible; and (4) finding opportunities for regional and local benefit via impact assessment processes. This analysis is based on a review of publicly available primary sources (e.g. company documents) and interviews carried out with regional authorities and foreign executives in Yuzhno-Sakhalinsk in September 2006.

Changing the Federal-Regional Relationship

The early days of the post-Soviet period were marked by a pronounced decentralization, with many formerly centrally-held competencies being delegated to regional governments. Technically, subsoil development was considered a shared federal-regional competency, with the federal government leading new initiatives and the regional government enjoying more involvement in proposal approval and implementation. However, most regional governments took a more pro-active role by establishing their own oil and gas concerns and taking an active and influential interest in negotiating licenses and monitoring projects.

Upon taking power at the end of 1999, President Vladimir Putin reversed the decentralization trend and replaced it with a policy to recentralize power and revenue. In August 2004, the State Duma passed a revised law on subsoil resources that effectively returned their management to the federal government exclusively. The recentralization of power helped the federal government gain greater control over regional revenues, including profits from oil and gas development. While the regions used to retain 50 percent of tax revenues, this balance has shifted in favor of Moscow, which then is to allocate revenues back to regional budgets. As becomes clear with the case of Sakhalin, much of the activity of the regional authorities is directed towards locating ways in which the revenues of oil and gas development can, despite recentralization, be captured at the regional level.

Regional Interventions and the Ambiguities of Russian Federalism

Historically, Sakhalin Oblast authorities did not gain as much control as other resource-rich regions during the post-Soviet decentralization, as offshore oil and gas fields fell clearly under federal jurisdiction. Regardless, regional authorities have been largely supportive of development and can continue to be characterized as pro-development. In fact, it was primarily regional voices (although still only a few) that publicly supported the companies of the Sakhalin-2 consortium when the consortium announced cost overruns that could delay the stage at which the Russian federal government would gain substantial revenue from the project as outlined in the relevant production sharing agreement (PSA). The cost overrun, in tandem with record-high oil prices, a general push for greater federal control of energy projects and dissatisfaction with PSAs, resulted in enough regulatory and political pressure being placed on the consortium to ensure that Gazprom became the controlling shareholder. At a point where the tenor of the debate within Russia had become rather apocalyptic, Evgeny Galichanin, a member of the State Duma from Sakhalin and chairman of the Duma subcommittee on the oil industry stated, calmly: "The situation must not be exaggerated and there must be no panic... Sensational statements and threats to withdraw the license are unacceptable."

Representing Sakhalin oil and gas interests at the federal level is perhaps the most important (and only) role that regional authorities have to play for projects in early licensing or exploration phases (such as the Sakhalin-3, 4, 5 and 6 projects). The regional government had, throughout the 1990s and early 2000s, been pro-active at the federal level in working to speed such nascent projects along, lobbying authorities in Moscow for improvements and clarifications to PSA legislation. Although it is now clear that Russia will not sign any further PSAs due to dissatisfaction with the existing PSAs concluded in a period of economic turmoil in Russia and low world oil prices, regional authorities continue to work in Moscow to facilitate further development. As one oil executive put it in an interview with the author, "the regional government is our primary cheerleader because of the jobs and revenues that are evident at the local level." This interviewee argued that regional authorities often work at the federal level to expedite Sakhalin-related issues. More room, however, for regional influence opens up within advanced projects and a brief review of aspects of the Sakhalin-1 and Sakhalin-2 projects illustrates ways in which this influence is acquired and wielded.

Sakhalin-1

Sakhalin-1 consists of Exxon (30%); Japan Sakhalin Oil (30%); India's ONGC (20%); SakhalinMorneftegaz (11.5%) and RN-Astra (8.5%). A Sakhalin-1 PSA became effective in 1996, but the project developed slowly until 2002. By 2006, Sakhalin-1 was one of the five biggest oil projects worldwide.

Sakhalin's regional leadership was reportedly unhappy with the Sakhalin-1 consortium's early decision to use primarily sea transport, as its aim had been to involve both Sakhalin-1 and Sakhalin-2 in order to spread the risk and investment needed to build an oil and gas pipeline along the length of the island. Exxon, the operating company for Sakhalin-1, balked at the cost of the pipeline. Some critical approvals were then delayed until the Kremlin's recentralization process greatly diminished regional authority and Exxon was able to pursue its preferred plans despite dissatisfaction at the regional level. Even though the regional authorities failed to realize their objective, this moment illustrates the overall desire of the regional government to bring offshore projects more "onshore" as soon as possible. Once projects are reliant on onshore infrastructure, there are more opportunities for local and regional influence. While the Sakhalin Oblast administration and constituent municipal governments do not exercise control over the continental shelf, they do have significant authority over important onshore elements, such as land and rights of way for onshore construction.

One such example of onshore activity is an airport construction project in the northern town of Nogliki. Extensive upgrades of this local airport were carried out by Sakhalin-1 and Sakhalin-2 consortia working in tandem and the airport opened with regional approval for public and company use in 2004. This airport is also an example of how ambiguity and uncertainty in the division of competencies between the federal and regional levels can play an unpredictable role in the process of development – the airport was closed by federal authorities for general use in 2005 due to an alleged lack of necessary federal permits. Reportedly, an important element for re-opening the airport to the public was a letter written by the president of Rosneft directly to Putin, who then ordered that the Nogliki Airport should be opened to commercial travel by June 2007.

Sakhalin-2

Sakhalin-2 – the largest integrated oil and gas project in the world – is run by a consortium of corporations collectively called the Sakhalin Energy Investment Company (SEIC). Royal Dutch Shell was the majority partner until Gazprom gained a controlling share of the project as the result of a December 2006 deal. The Sakhalin-2 project illustrates: 1) ways in which regional authorities wield influence when new infrastructure or impact assessments are needed and 2) how the federal-regional fiscal relationship motivates the pursuit of such indirect power.

In terms of infrastructure and assessment, the first phase of the project involved the installation of an offshore platform with no onshore construction beyond staff housing and office space. With the commencement of phase two in 2003, the influence of the regional and municipal administrations increased as Sakhalin-2 needed to move its primarily offshore activities onshore. Phase two construction included a pipeline extending more than 600 kilometers down the length of the island to a newly constructed LNG (liquefied natural gas) plant and oil export facility at the southern end of Sakhalin. Phase two, according to a 2005 company document outlining public consultation plans, resulted in \$300 million in infrastructure development on Sakhalin, including the construction of new bridges, upgrading of public roads and improvements to docks and railways.

The expansion of onshore infrastructure opens another window for regional influence via the municipal level. In 2001, Putin proposed devolving more authority to the municipal level, partly as a counterweight for recentralization. This proposition resulted in a 2003 law “On Local Self-Government” outlining reforms that thus far remain largely unimplemented. The reform itself does not devolve specific authority relating to subsurface resource development and it is notable that regional governors and administrations, rather than municipal representatives, were involved in the commission that developed the law. However, the clarification of the land boundaries of municipalities may strengthen a card the municipal level already has to play – authority over land. As it stands now, oil and gas companies are frequently required to negotiate with municipal authorities when construction, such as a new pipeline, crosses municipal boundaries. Given the relatively low capacity of many municipal governments, it is likely that the regional administration intervenes in this supposedly municipal process and works to extract maximum benefit, including additional desirable infrastructure and lease payments, from the relevant companies.

Phase two of the project also necessitated new rounds of consultation with local, regional and national stakeholders and environmental and social impact assessments. The impact assessment process is one in which regional law can be brought to bear in some ways. On the federal level, the SEIC impact assessment process was subject to 22 federal laws, 13 regulations and procedures and 8 guidance documents. On the regional level, 11 regional laws ranging from town planning to endangered species to taxation and 10 gubernatorial decrees had to be taken into consideration as well. It is noteworthy, however, that a 2003 SEIC text outlining the company’s approach to environmental impact assessment states clearly that the assessment is in keeping with federal law and *considers* regional law. Obviously, regional law remains of secondary legal importance in the assessment process.

The question of federal-regional revenue sharing and the dramatic changes introduced in this field during the Putin presidency does much to explain why the regional level seeks to exert influence and capture profit in the rather indirect ways described above. The Sakhalin-2 PSA illustrates this change vividly. Once Sakhalin Energy recovers the cost of its initial investment it will begin sharing profits on a greater scale, as specified in its PSA, with the “Russian party.” When the Sakhalin-2 PSA was first set up, there was no clear line made between the federal and regional components of the “Russian party.” Subsidiary agreements clarified that the oblast would receive 60 percent of profits and the federal government 40 percent. The actual profit split between the regional and federal administrations, however, remains contingent on presidential decree and can be lawfully changed yearly or counteracted by new decrees. At present, and reflecting Putin’s recentralization of authorities and revenues, the regional administration now receives 5 percent of those revenues already generated today with 95 percent going to Moscow.

The contingency of regional profits on federal decisions creates problems for the Sakhalin Administration, as it cannot achieve the level of revenue certainty required to secure long-term loans independently for infrastructure development. One interviewee from within the oil sector with a long-term involvement on Sakhalin described this uncertainty as motivating the municipal and regional levels to look for large-scale and concrete benefits, such as school and hospital infrastructure, from oil companies in exchange for granting approvals and leases on land use. The administration also seeks other opportunities for regional economic development and benefit. For example, the Sakhalin-2 consortium paid \$100 million into the Sakhalin Development Fund in the five years following the commencement of commercial oil extraction. The oblast administration has also taken a keen interest in following how contracts are awarded and has promoted a “Sakhalin First” policy in relation to the award of tenders whenever this has been feasible, despite a lack of industrial capacity in the Russian Far East and the problem this poses to companies seeking to meet such local content requirements.

Conclusions

Despite political and fiscal centralization, Sakhalin authorities continue to exert indirect, albeit greatly reduced, influence over the process of oil and gas development. Regional authorities have endeavored to expedite project development to the point where onshore infrastructure is both necessary and desirable. When offshore development requires onshore access, oil and gas exploitation becomes more directly profitable to, and controllable by, the region itself and the opportunities for capturing economic benefits at the regional level increase. This facilitating and expediting role is exemplified by regional authorities using their contacts in Moscow to intervene at the federal level on behalf of oil and gas consortiums active in Sakhalin and lobbying for expedited award of PSAs and stable PSA legislation, when these agreements still seemed like a feasible alternative for moving development forward.

However, local authorities have not refrained from intervening and sometimes slowing projects' development in order to increase regional involvement/control and potential regional benefits. For example, Sakhalin Oblast has lobbied for local awards of contracts whenever possible, forwarding a "Sakhalin-first" policy, and successfully ensured that payments to the Sakhalin Development Fund were included in Sakhalin-1 and -2's PSAs. This points to ways in which regional authorities are vigilant in holding oil and gas consortiums to the requirements of their contracts, particularly when these requirements result in direct benefit at the local and regional levels. Regional authorities also seem to be able to exercise some authority over the impact assessment process – an undertaking that certainly requires their knowledge of the local political and social environment.

Although the authority of the region is doubtlessly diminished, the ability of regional administrations to act as "cheerleaders" or "brakes" should not be underestimated. Thus it seems that although regional governments no longer possess the authority they once had, the complex and detailed processes entailed in oil and gas development necessitate good relationships on all levels of government. The regional level, in this way, retains residual power and also actively works to build up both formal and informal authority in new capacities.

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Part III: Energy and Foreign Policy

Russian Energy Power Abroad

By Jeronim Perovic, Zurich

Abstract

Energy lies at the heart of Russia's economic recovery. The wealth generated from energy exports has gone hand in hand with political stabilization and has contributed significantly to Russia's assertiveness in international politics. Energy has emerged as a key factor shaping Russian's foreign relations. But it is difficult for Russia to use energy as leverage in a market where buyers, sellers, and intermediaries are so inter-connected. The interdependencies in the energy market are complex, and changes in the system can easily lead to conflicts that might ultimately also affect Russia in a negative way. Russia thus has to maneuver carefully in its decision-making, since the stability of the system also depends on the choices that the EU, Russia's neighbors, and the US make.

Russia's Role for Eurasian Energy Flows

As a major supplier of fossil fuel, Russia plays an important role for global energy security. According to the most recent European Commission figures, 27 percent of the oil and 24 percent of the gas consumed in the EU are of Russian origin. Of EU imports, 30 percent of its oil and 44 percent of its gas come from Russia. Some of Russia's post-Soviet neighbors (e.g., Ukraine, Belarus, Armenia, Georgia, and Moldova) as well as other non-EU states (especially the western Balkan countries and Turkey) are likewise dependent on Russian energy.

Russia also represents the most important channel for Eurasian energy flows. The country is the main export outlet for Central Asian gas and oil and the most important consumer of gas from Kazakhstan, Uzbekistan, and Turkmenistan. Recent developments have only had a small impact on this picture. Some of the Caspian oil and gas exports sent westwards now circumvent Russian territory via newly constructed pipelines from Azerbaijan through Georgia to Turkey. Small amounts of Turkmen gas flow to Iran by pipeline, and some of Kazakhstan's oil is shipped to China via a new pipeline.

Furthermore, Russia is seeking to become a key player on the Asian oil and gas markets. While the Sakhalin fields already provide some energy to countries in the Asian-Pacific region, plans are underway to explore and develop East Siberian oil and gas fields and to build a network of oil and gas pipelines connecting this region to Asian consumers.

Concerns about Russia

Russia has received bad press for its foreign energy policy. The price dispute between Gazprom and Ukraine, for instance, which ultimately prompted Russia to cut off gas deliveries to Ukraine in January 2006, has sometimes been portrayed in Western media as a politically-motivated action and "punishment" from the Kremlin for the country's "Orange Revolution" of 2004. The construction of a pipeline from Russia to Germany under the Baltic Sea and the penetration of the European energy market by Gazprom and other Russian energy companies are often seen as part of a "divide and conquer" policy aimed at undermining efforts by European Union members to pursue a common European energy policy. Russia's declared goal of entering the Asian energy market is frequently depicted as an attempt to play off East against West.

Russians argue that their actions are driven purely by business interests as they seek to secure the highest possible return for their energy sales. While Russian motivations remain a matter of contention, many are beginning to fear that Russia is simply not investing enough in its production capacity to provide sufficient oil and gas to meet growing European demand while satisfying new Asian customers. Russia's ability to meet future world demand is becoming a question of increasing anxiety. Russian companies have been increasing their investment in upstream projects recently, but the question ultimately remains whether new fields will come online *before* existing production falls to a point where Russia will not be able to meet the projected output increase (see also Indra Øverland's article on p. 45).

Nevertheless, Russia certainly has every interest in keeping a strong profile as an energy supplier to international markets. The energy sector is the motor of Russia's economic growth and the massive rents generated

from oil and gas sales are highly important for Russia's state revenues. In 2006, the Russian budget received close to \$50 billion from oil export duties. Almost half of Russia's total export earnings are oil-related.

Russian-European Energy Relations

Europe is by far Russia's most important trading partner. Given the very strong mutual dependencies between Russia and Europe, it is at present hard to imagine that either side would see a benefit in applying sanctions against the other. Around two thirds of Russian gas and oil exports go to EU member states, while the rest is sold to other European countries and the CIS. According to European Commission figures, in 2005, the EU accounted for some 56 percent of Russia's exports and around 45 percent of its imports. In such numerical terms, the significance of Russia for Europe is relatively small. Russia is certainly important as a supplier of oil and gas to Europe, but its role is also confined to these two commodities. Overall, in 2005, the country accounted for only about 10 percent of EU overall imports and consumed a little more than 6 percent of EU exports.

Although in terms of overall trade volumes, Russia is clearly much more dependent on Europe than vice versa, it is the *quality* of the dependency that makes Russia equally important to Europe. Oil and gas are commodities of the highest strategic importance, and Europe at present cannot do without Russian supplies. A hypothetical stop of Russian oil deliveries would hurt Europe less than a disruption of gas supplies, however, simply because all of the gas that Europe imports from Russia arrives through pipelines and there are currently no alternative sources. The physical connection between consumers and producers is less immediate in the case of oil, where most imports arrive by tanker, and where shortfalls could theoretically be balanced via imports from other places.

Europe could gain leverage in dealing with Russia if the members of the EU decided to speak with one voice towards Russia. As long as European countries prefer to deal with Russia on the basis of individual bilateral relations, the EU cannot bring the full potential of its leverage to bear. This is why the EU has so far failed to achieve reciprocity in its energy relations. While Russian companies are allowed to enter the EU downstream market, EU and foreign companies still face obstacles when seeking similar access in Russia. The state-controlled Gazprom monopoly controls 85 percent of gas production and all major gas pipelines and the state monopoly Transneft operates Russia's oil transportation system.

The EU has made a series of efforts to increase the pressure on Russia, for instance by a EU Commission proposal in summer 2007 that aims to break up big utilities that control power supply, generation, and transmission. While this planned legislation is directed at some of Europe's own big energy utilities, it would also effectively bar foreign companies such as Gazprom from controlling European networks unless they play by the same rules as EU companies and their home country has an agreement with Brussels. While this plan faces opposition from within the EU itself, Russia has also reacted angrily, and it is still very uncertain whether this plan will be implemented in the near future. For the time being, however, the disputes in European-Russian relations are not reflected at the general level of business cooperation or in day-to-day politics.

Energy Dependencies between Russia and its Post-Soviet Neighbors

Energy is also a major element in Russia's relations with its post-Soviet neighbors. Russia is important for the region in two ways: as a customer and transit country for Central Asian gas and oil, and as a supplier of oil, gas, and electricity to energy-poor countries like Georgia, Armenia, Moldova, Ukraine, and Belarus.

But Russia is also dependent on some of these states. Russia relies on Central Asian gas imports in order to offset declining production from its own major fields in Western Siberia. Ukraine and Belarus are important as transit countries for Russian gas and oil to Europe: About 80 percent of Russia's gas destined for Europe transits Ukraine. Russia's biggest oil pipeline, Druzhba, which accounts for about one third of Russia's crude exports to Europe, crosses Belarus. Even after the new oil and gas pipelines circumventing Ukraine and Belarus become operational, the bulk of Russian gas, and a significant share of Russian pipeline oil, will still pass through these two countries.

There have been two notable changes in Russia's approach towards its former Soviet neighbors in recent years: A first change is that Russia has stopped its policy of subsidizing other economies with cheap gas. Thus, from about 2005–2006 onwards, it started to raise prices to world market levels. It has occasionally done so in very bad style by abruptly shutting down energy supplies. But, even if Russia's price hikes should cause more friction in the years to come, this development would still be a healthy one, as it would end the subsidies to these economies of cheap Russian energy and would eventually help to stabilize relations between Russia and its

neighbors based on market principles. In fact, Russia has been raising prices for its adversaries (e.g., Georgia) and allies (e.g., Belarus) alike, although at varying speeds. In some instances, Russia has even accepted that the price increase will result in a loss of influence. For example, Georgia, which until recently imported all of its gas from Russia, is increasingly turning to Azerbaijan and Iran as alternative sources for its imports. Azerbaijan has stopped importing Russian gas altogether and has tapped into its own domestic sources.

A second change has occurred in the way Russia handles the Central Asian gas producers. Russia is still the major outlet for the gas (and oil) extracted in the region, but given the competition from the EU, the US, and China for Central Asian energy, Russia has decided to become a more attractive customer by offering higher prices. While Turkmenistan sold its gas to Russia for \$44 per thousand cubic meters of gas in 2005 (with only half of it paid in cash), the price was \$100 in 2007. In the meantime, the two sides have agreed to raise the price to \$150 by July–December 2008. Russia is also paying much higher prices for gas purchased from Kazakhstan and Uzbekistan.

In addition to price increases, Russia has also offered the Caspian states the opportunity to expand their direct outlets to the lucrative Western European market by using its transportation system. In December 2007, for example, Russia finally agreed to expand the capacity of the pipeline operated by the Caspian Pipeline Consortium, which transports mainly Kazakhstan's oil westwards. Moscow decided to expand the capacity after Kazakhstan consented to ship oil through the planned Burgas-Alexandroupolis pipeline, a trans-Balkan pipeline designed to take Russian and Central Asian oil from Bulgaria to Greece.

In the case of Caspian gas, Europe is now competing with China for supplies. Currently, Russia buys up Central Asian gas and uses it to supply its own domestic market and the markets of Ukraine and other CIS states, thus freeing Russian gas for export to Europe at a higher price than Russia paid for it in Central Asia. Should China manage to divert substantial parts of Central Asia's gas eastwards, however, the balance between the CIS and Russia will suffer, thus potentially leaving less gas for Europe. While both Turkmenistan and Uzbekistan have already concluded agreements with China on gas supply via new pipelines, Kazakhstan is also contemplating the construction of a gas pipeline eastward along the route of the existing oil pipeline.

Russian-Asian Energy Relations

The concern that Russia might divert increasing volumes of already scarce energy to Asia, mostly to China, thus leaving less for Europe, is a distorted view insofar as it leaves a key element of Russia's Asia strategy out of the picture: namely, that Russia intends to develop new fields in East Siberia and the Far East for the purpose of making additional oil and gas available for the Asian market (see also Nina Poussenkova's article on p. 50).

However, Russia's diversification efforts towards Asia are not going as smoothly as planned. Apart from the Sakhalin oil and gas projects, other major projects – like the Kovytko gas field in Eastern Siberia – are still in the early stage of development. If the fields of Eastern Siberia are to be developed, the building of an extensive pipeline infrastructure to East Asia is of paramount importance. This, however, has also proved to be more complicated than anticipated. Negotiations with Japan and China have been going on since the early 1990s, but it is still uncertain when the pipelines will be built and become operational. Even the routes are still under discussion.

There are multiple reasons for Russia's failure to make much progress on the Asian energy front. In the area of gas, a major obstacle is certainly that Russia and China have not yet been able to agree on a price that will guarantee that Russia's large planned up-front investments will pay off within a foreseeable time span. Yet another, potentially more important issue is that Russia's policy towards China still seems to suffer from a psychological blockade fueled by decades of mutual mistrust. Russia understands that it has to engage with China for economic reasons, but it feels uneasy providing the fuel for China's modernization, which will inevitably accelerate the rise of a neighbor that could, from the Russian point of view, not only surpass Russia economically, but also pose a military threat in the future.

Even if pipelines are constructed that tie Asia to the fields in Western Siberia (a region that has traditionally supplied the European market), the key issue would likely not be politics, but the price that Russia's customers in West and East are ready to pay. As of now, Europe remains by far the most lucrative market for Russian gas and oil, and the most important source for generating Russian export revenues. Under normal political and economic circumstances, Russia is unlikely to redirect gas destined for its traditional customers in Europe to Asia unless it can achieve similar or better conditions.

Contrary to what is often written in the Western media, the main point for Russia is not to balance Europe against Asia, but to establish a diversity of customers among the individual Asian countries (mainly China and Japan) and, in the case of Sakhalin, among Asia and the US. Russia seeks a diversity to reduce its dependence on any particular customer.

Energy and Russia's Future

The international markets are dependent on Russian energy, but Russia is also dependent on these markets. The real worry for Europe and Russia's neighbors is not so much with regard to Russia's foreign energy policy, but the role that energy plays for Russian domestic trajectories.

Energy has provided the fuel for Russia's economic growth and has helped to stabilize Russia after the political chaos and economic turmoil of the 1990s. But this stabilization has come at the expense of democracy and uneven economic development in favor of the raw materials' sector. The massive new wealth from oil and gas sales has also helped spur an increase in corruption and authoritarian tendencies. Russia's stability is very much linked to the ability of the ruling elite to redistribute rents in a way so as to accommodate the various conflicting interests in Russian society. At least indirectly, Russia's stability is thus tied to a well-functioning domestic and international energy market and stable prices. It also depends on Russia's ability to continue playing a significant role as a supplier of energy to international markets. Major disruptions would ultimately test Russia's precarious political stability.

The challenge for Russia's new president will be to manage Russia's energy wealth in the way that is best for the country's long-term political, economic, and social development. Such efforts can best succeed if Russia manages to develop a thriving liberal market that is at least to some extent dependent on an open society.

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Gazprom's Expansion Strategy in Europe and the Liberalization of EU Energy Markets

By Andreas Heinrich, Koszalin

Abstract

Gazprom has focused its expansion strategy on Europe, its main consumer market. Driven by a desire to open up and secure markets as well as to acquire strategic assets in these markets, the company has intensified its internationalization efforts in the last couple of years. The European Union (EU) gas market liberalization has also propelled Gazprom's expansion; the company has striven to increase its share in the European downstream market. However, Gazprom's expansion in Europe is running into increasing opposition fuelled by fears of over-reliance on Russian gas and growing Russian influence on distribution networks in Europe.

Gazprom's Expansion Strategy

Russia's quasi-gas-monopoly Gazprom is trying to re-establish its networking and extraction-supply chain on the territory of the former Soviet Union and expand its traditional consumer markets in Western and Central Europe. To this end, it is venturing into new markets and market segments, such as power generation. Additionally, the company is expanding into new global markets in the Middle, Near, and Far East, South America, and Africa.

Gazprom has developed plans to expand natural gas exports in all possible directions. Since 2005, its export share has sharply increased, from a formerly fairly stable level of around one-third of its production to nearly half of its overall production in 2006 (see Table 1 on p. 71). In Western and Central Europe especially, Gazprom is trying to diversify the structure of its consumer base and to increase its participation in deliveries to end-users. Gazprom has established overseas sale subsidiaries in nearly all countries to which its natural gas is exported. Moreover, the company has made overtures to gain direct access to large industrial and gas-fired power generation markets in Western and Central Europe.

These actions represent attempts at market-seeking (participation in the EU downstream market) as well as strategic asset- or capability-seeking – mainly in Central Europe and the former Soviet Union – in order to maintain influence and secure control over transit routes. To prevent its partners from engaging in opportunistic behavior, Gazprom is endeavoring to maintain control through majority ownership rather than acting as a mere profit-seeking investor (see Table 2 on p. 71–73). The company certainly wanted to take the opportunity to enter the liberalized EU gas market.

EU Gas Market Liberalization as a Pull Factor

The first formal step in the liberalization process of the European gas market was the first EU Gas Directive (98/30/EC). Adopted in June 1998, the Directive laid down the common rules for an EU internal gas market in which eventually all users were to have a choice of supplier. It came into force in August 2000.

In June 2003, the European Commission (EC) issued the second Gas Directive (2003/55/EC), which stipulated a new set of common rules for the internal gas market and thus replaced the first Directive. In so doing, the EC wanted to reduce the power of energy companies by obligating them to split up or “unbundle” the ownership of generation and distribution networks. The Directive granted all non-household gas customers the right to choose their supplier freely as of 1 July 2004 at the latest, with all customers to have this right by 1 July 2007.

Gazprom has profited from the EU's gas market liberalization initiatives by gaining access to the downstream business in Europe. To participate in the profitable downstream market, it has established joint venture marketing companies in nearly all of its consumer countries (see Table 2 on p. 71–73). Gazprom has also invested in non-core business equity outside the Russian Federation, like gas equipment manufacturing, petrochemicals, media and financial services.

Gazprom's Joint Ventures in Europe

It is difficult to establish a full picture of Gazprom's activities abroad. The company puts enormous effort into covering its tracks by using subsidiaries such as Gazprom Germania (Germany), Gazprombank (Russia), Gazprom Media (Russia), or shell companies to invest overseas. One can only guess at the reasons: to avoid resistance to its investment in the host countries and/or to avoid taxation and/or for asset stripping purposes. As of 2005, the company's strategy for the upcoming decade was not only to become a gas giant (which it already was), but "to become the largest energy company in the world" (Alexander Medvedev). Therefore, the company's joint ventures listed in Table 2 on p. 71–73 only represent the tip of the iceberg.

Gazprom's investment activities frequently encounter opposition. The problems and political protests Gazprom met in its attempts to acquire the Hungarian Borsodchem in 2000 and the British Centrica in 2006 highlight the fact that the Russian gas company is not always welcome in Europe. Gazprom used an Ireland-based sham firm for a hostile take-over of Hungary's Borsodchem chemical manufacturer in 2000, a move that was opposed by the Hungarian government and led to numerous political protests. Nevertheless, Gazprom was able to acquire a 25 percent stake in the company.

In 2006, Gazprom planned to acquire Centrica, which owns the largest distribution network in Great Britain. However, the British government signaled discontent and undertook measures to make the acquisition more complicated. As a result, Gazprom backed down from the deal but issued a sharp warning to Europe not to interfere in its efforts to expand on the continent, calling the practice discriminatory.

However, despite these backlashes, Gazprom has not abandoned its desire to diversify into Europe's gas transportation, distribution and power generation industries to gain added value and build upon its traditional business of supplying wholesale gas supplies to regional monopolies. In its latest move, Gazprom is negotiating to acquire storage facilities and distribution hubs across the EU; the company is eager to have direct access to the distribution networks as well as venture into power generation. The new strategy involves establishing joint ventures to build large natural gas storage depots in Hungary, Germany, Belgium, Serbia, and Romania. The storage facilities are designed to cope with unusually high demand during cold snaps and would help to ensure continued supplies to Western markets in case of new disputes involving the pipeline transit countries.

Additionally, Soteg SA, a Luxemburg company, and Gazprom struck a deal in April 2007 to build an 800 megawatt electricity-generating facility in Eisenhüttenstadt, Germany. The facility plans to sell most of its electricity across several EU states via long-term industry contracts.

More Liberalization, but with Safeguards

In September 2007, the EC published its "third liberalization package" of EU energy legislation focusing on anti-competitiveness within European energy markets. It presented EU governments with the option of full ownership unbundling or introducing an Independent System Operator (ISO) for the gas sectors. Originally, the EC wanted only to propose full ownership unbundling, but after significant pressure from Germany and France, the EC ended up offering both options. (Germany and France argue that unbundling would weaken their bargaining position against energy suppliers like Russia.) Ownership unbundling would involve selling the transmission business or dividing the network operations from production and supply. Alternatively, the network could be run by an ISO approved by the EC. This would allow integrated energy companies to continue to own networks, but at the price of relinquishing day-to-day control of these networks to independent operators.

The EC legislation also bans any non-EU company from controlling European gas networks. The unbundling proposals would also extend to gas storage providers, which also supply gas. In EU states choosing ownership unbundling, networks would be off limits to any energy supplier regardless of nationality; in states opting for ISOs, any energy supplier could invest in, but not control or operate, an EU network.

If enacted, the EC legislative proposals would both seriously jeopardize Gazprom's expansion plans and also undermine the position the company has already achieved in EU markets. The proposals would not only prevent Gazprom from buying parts of the EU's transmission network, but would also force the company to sell its assets in EU transport, distribution, and storage infrastructures or spin them off into separate companies managed by independent operators. This would undo the strategy that the company has been pursuing for the last few years, which is to dominate all segments of the EU gas market (production, transport, storage, and distribution). However, Gazprom could still acquire generation, production, and retail assets.

Russian politicians have criticized the EC's liberalization proposals. Russian officials consider many of these to be unfair business practices and demand non-discriminatory access to downstream assets in Europe. In October 2007, Gazprom hinted that it was prepared to take retaliatory measures if the EU decided to limit its expansion.

Most experts believe that the EC's draft is unlikely to come into force in its present form. The legislative initiative must be approved by the European Parliament and the Council, and may have to undergo major adjustments. There is already opposition to the legislation inside the EU; the proposal has already been criticized by German and French government officials and EU companies that are monopolies in their respective markets.

European Concerns about Over-Dependence on Russian Gas

EU countries are concerned about over-reliance on Russian gas. The EU is therefore aiming to open up energy markets to competition and secure energy supplies through the diversification of sources by geographical regions, goals which may adversely affect Russian gas exports to the EU in the medium and long runs. This position has been explicitly formulated by the European Commission. Even though there are officially no restrictions on amounts, it is recommended that not more than 30 percent of EU members' energy needs come from any one source.

The Eastern European EU members are highly dependent on Russian gas (see Table 3 on p. 74). The Western European states' reliance on Russia is fairly low by comparison, especially when European domestic energy extraction is taken into account. Even Germany, by far the largest consumer of Russian gas in the EU, has managed to keep the Russian share in its overall gas consumption fairly stable at approximately one-third since the 1970s.

The EU is also striving to further geographically diversify its energy supplies as an instrument of energy security (for the current EU-27 supply structure, see Table 4 on p. 74). This is the purpose of a number of current projects, such as pipelines from North Africa, the Nabucco pipeline running from the eastern border of Turkey to Southern Europe, and the construction of further terminals for liquefied natural gas (LNG). The Nabucco project, which has been delayed by internal problems, is countered by Russia's South Stream pipeline project, which it announced in June 2007 and which would transport Russian gas to Italy and Austria. The 900-km South Stream pipeline is to cross the Black Sea directly into Bulgaria. From there, two onshore branches, one going to Austria and the other to Greece and then to Italy will be considered. The pipeline will have a capacity of 30 bcm per year and will take three years to build. Gazprom expects the work to start in 2008 or 2009.

Algeria is being eyed by EU officials as a primary source for the diversification of gas supplies in order to decrease dependence on Russian gas. Meanwhile, Gazprom is pursuing closer cooperation with the Algerian government and local gas operators, reportedly in an attempt to establish an international cartel to control the majority of the European market's gas supplies. The two sides plan to work together on production, extraction, and transportation of local gas to the world market. However, due to divergent interests between the potential partners (that would supposedly also include Iran, Qatar etc.) of this "gas OPEC," its creation seems rather unlikely.

Taking into account the events of the Russian-Ukrainian gas crisis in January 2006, the question arises whether Gazprom is a reliable energy supplier. Although the natural gas affair damaged the Kremlin's image, Gazprom's actions – when regarded dispassionately – gave no reason to question the company's reliability as a gas supplier. The very fact that the authorities were obliged to reverse their decision to cut off gas supplies to Ukraine clearly shows that fiddling with the gas tap is not a real policy option for Russia. The Russian side cannot seriously blackmail either the transit states or the end customers in Europe, because it is fundamentally dependent on both. In 2006, around 54 percent of Gazprom's natural gas exports were delivered to the EU-27, while a further 9.3 percent went to other European countries (including Turkey).

However, as the crisis over oil supplies with Belarus in January 2007 showed, Russia is a slow learner.

Nevertheless, Gazprom has proven to be a reliable supplier of natural gas to the EU. But even if Gazprom does not *per se* constitute a risk factor for the energy security of the EU and its members, they would nevertheless be well advised to continue their current diversification efforts, since technical difficulties, for instance, can never be excluded. An intensification of energy ties with Russia, such as Germany is pursuing with the Nord Stream gas pipeline project, is not advisable. Germany should not be tempted by this deal to significantly increase the share of Russian gas in its overall energy supply.

However, EU concerns have so far failed to translate into a united energy policy towards Russia. Many EU members still favor national champions in the energy sector, whose strong position domestically and internationally is valued more than a common EU energy policy. These companies seek to develop privileged relations with Gazprom. Each EU country has its own bilateral relationship and special deals with Russia over energy. Countries that enjoy close energy cooperation with Russia (like Germany and Italy) have a stronger inclination to engage with Gazprom than other EU members. Additionally, the range of Russian gas on EU members' energy balances differs strongly (see Table 3 on p. 74).

Conclusion

Gazprom has focused its expansion strategy on Europe, its main consumer market. It has intensified its internationalization efforts since the EU introduced its gas market liberalization policy. The EU has put pressure on energy companies to dismantle the links between production, transportation, and distribution to open the sector to greater competition and price transparency; meanwhile, Gazprom's strategy in Europe entails establishing a large distribution and trading network throughout the EU.

However, Gazprom's expansion in Europe has not been smooth sailing. Fuelled by concerns of overdependence on Russian gas and of Russian control over distribution networks in Europe, member states are searching for alternative supplies.

Even though Gazprom has had a reliable track record as a supplier, its western clients should continue their current diversification efforts. However, Gazprom is doing everything in its power to undermine these efforts: for example, the company is blocking the Nabucco pipeline project by supplying the markets with Russian gas via the South Stream pipeline. Gas hubs and storage facilities within the EU will be filled with Russian gas and thus blunt demand for gas from other sources.

A common energy policy is needed to make diversification work. One way to increase the EU's energy security would be to liberalize its own market and unbundle its national utilities. This would cut profit margins in gas distribution, and thereby reduce Gazprom's appetite for these assets. It would also weaken "special relationships" between Russia and single member states and thus strengthen a common EU energy policy. The weakened bargaining position of individual EU energy companies against energy suppliers would be offset by a common EU position presented by the EU energy commissioner.

Europe is also talking of building more LNG terminals that can be supplied by other suppliers; unlike the pipeline projects, these facilities would be beyond the reach of the Russian gas behemoth.

About the author:

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Gazprom Joint Ventures, EU Gas Imports

Table 1: Share of Exports in Gazprom's Total Natural Gas Production (in bn cm)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Production	533.8	553.7	545.6	523.2	511.9	521.9	540.2	545.1	555.0	556.0
Exports	188.9	173.0	174.0	173.7	166.5	168.9	175.5	192.0	232.7	262.5
Export ratio	35.4	31.2	31.8	33.2	32.5	32.4	32.5	35.2	41.9	47.2

Sources: Company information; own calculations.

Table 2: Gazprom's Joint Ventures in Europe in 2006 (including offshore locations)

Country	Joint venture	Share	Activities
Austria	ARosgas Holding AG	100	Gas marketing
	Gas- und Warenhandels-gesellschaft (GHW)	50	Gas trading
	Sibneft Oil Trade GmbH	100	Oil trading
	ZGG-Zarubezhgazneftechim Trading GmbH	100	Gas trading
	ZMB Gasspeicher Holding GmbH	66.7	Gas storage
Bulgaria	Topenergo	100	Gas trading and transport
	Overgas	50	Gas trading
	Overgas Inc.	50	N/A
Cayman Islands	ZGG Cayman Holding Ltd.	100	Investment company
	ZGG Cayman Ltd	100	Investment company
Cyprus	Ecofran Marketing Consulting & Communication Services Company Ltd.	N/A	N/A
	GASEXCO Gas Exploration Company Ltd.	N/A	Gas exploration
	Greatham Overseas Limited	N/A	N/A
	Leadville Investments Ltd.	100	Investment company
	MF Media Finance (Overseas) Ltd.	N/A	Investment company
	NTV World Ltd.	N/A	Media
	Odex Exploration Ltd.	20	Oil exploration
	Private Company Limited by Shares GPBI (Cyprus) Ltd.	N/A	N/A
	Siritia Ventures Ltd.	N/A	Investment company
Czech Republic	Gas Invest	37.5	Investment company
	Vemex s.r.o.	33	Gas trading
Estonia	Eesti Gaas	37.2	Gas trading and transport
Finland	Gasum Oy	25	Gas transportation and marketing
	North Transgas Oy	100	Pipeline construction beneath the Baltic Sea
France	FRAgaz	50	Gas trading
	Sofrasi	30	Representative office

Country	Joint venture	Share	Activities
Germany	Agrogaz GmbH	100	Via ZGG
	Centrex Beteiligungs GmbH	38	Gas trading and investment company
	HTB Europa GmbH	N/A	Media
	Gazprom Germania (formerly known as ZGG)	100	Gas trading
	Verbundnetz Gas (VNG)	5.3	Gas transportation and marketing
	Wingas	33 ^a	Gas transportation and storage
	Wintershall Erdgas Handelshaus (WIEH)	50	Gas trading
	ZMB Mobil	100	Gas-fuelled automobile technology
	ZMB-Zarubezhgaz Management und Beteiligungsgesellschaft GmbH (ZMB GmbH)	100	Gas trading
Gibraltar	Bleakend Holdings Limited	N/A	Media
Greece	Prometheus Gaz	50	Marketing and construction
Hungary	Borsodchem	25	Petrochemicals
	DKG-EAST Co. Inc.	38.1	Oil and gas equipment manufacturing
	Gazkomplekt KFT	N/A	N/A
	NTV Hungary Commercial Limited Liability Company	N/A	Media
	Panrusgas	40	Gas trading and transport
Ireland	GPB Finance Plc.	N/A	Investment company
Italy	Promgaz	50	Gas trading and marketing
	Volta	49	Gas trading and transport
Latvia	Latvijas Gaze	34	Gas trading and transport
Lichtenstein	IDF Anlagegesellschaft	50	Investment company (holding via Siritia Ventures Ltd., Cyprus)
Lithuania	Kaunas power plant	99.5	Gas fired heat and power plant
	Lietuvos Dujos	37.1	Gas trading and transport
	Rizhskiy Farfor	N/A	N/A
	Stella-Vitae	30	Gas trading
Poland	Gas Trading	18.4	Gas trading
	Evropol Gaz (Europolgaz)	48	Gas transport
Romania	WIEE Romania SRL	50	Gas distribution
	WIROM Gas S.A.	26	Gas trading (controlled through WIEH)
Serbia	Progresgaz Trading Ltd.	25–50	Gas trading
	YugoRosGaz	75	Gas trading and transport
Slovakia	Slovrusgaz	50	Gas trading and transport
Slovenia	Tagdem	7.6	Gas trading

Country	Joint venture	Share	Activities
Switzerland	Baltic LNG	80	Development and sale of LNG
	Gaz Project Development Central Asia AG (GPD)	50	Gas development and marketing
	Nord Stream AG	51	Operator of the planned 'Nord Stream' pipeline
	RosUkrEnerg AG	50	Gas trading
	Sibur-Europe	100	Investment company
	Wintershall Erdgas Handelshaus Zug AG (WIEE)	50	Gas trading
	ZMB (Schweiz) AG	100	Gas trading
The Netherlands	Blue Stream Pipeline Co	50	Gas transportation and construction
	Brochan B.V.	N/A	N/A
	Gazinvest Finance B.V.	N/A	Investment company
	Gazprom Finance B.V.	100	Investment company
	Gazprom Netherlands B.V.	100	N/A
	Gazprom Sakhalin Holdings B.V.	100	Owns 50% and 1 share in Sakhalin Energy, the operator of the Sakhalin-II oil and gas field
	NTV-HTB Holding and Finance B.V	N/A	Media
	NTV Plus B.V.	N/A	Media
	Pieter-Gaz	51	Gas trading
	Sib Finance B.V.	N/A	Investment company
	West East Pipeline Project Investment	100	Construction and investment company
Turkey	Bosphorus Gaz	40	Gas trading
	Turusgaz	45	Gas trading
UK / Belgium	Interconnector	10	Pipeline which connected Bacton (UK) with Zeebrugge (Belgium)
UK	Gazprom UK Ltd	100	Investment company
	Gazprom UK Marketing and Trading Ltd.	100	Gas trading
	HydroWingas	16.6 ^a	Gas trading
	Sibur International	100	Petrochemicals
	WINGAS Storage UK Ltd.	33	Underground gas storage reconstruction
Virgin Islands	Benton Solutions Inc.	N/A	N/A
	Media Financial Limited	N/A	Financial services
	Nagelfar Trade & Invest Ltd.	N/A	N/A
	NTV Media International Limited	N/A	Media
	Sib Oil Trade	100	Oil trading

Note: a) In 2007, Gazprom increased its shareholding in the German Wingas to 49.9%. As a result, its holding in HydroWingas (UK) increased to 25%.

Sources: Gazprom company information; Hans-Martin Tillack, "Die Gazoviki, das Geld und die Gier", *Stern*, No. 38 (2007): 192–198.

Table 3: EU members' dependence on gas supplies from Russia, 2006

	Imports from Russia (in bcm)	Percentage of total gas imports
Bulgaria	2.7	100
Estonia	0.7	100
Finland	4.9	100
Slovakia	7.0	100
Latvia	1.4	100
Lithuania	2.8	100
Romania	5.5	87.3
Greece	2.7	84.4
Hungary	8.8	80.0
Czech Republic	7.4	77.9
Austria	6.6	75.9
Poland	7.7	72.6
Slovenia	0.7	63.6
UK ^a	8.7	41.2
Germany	34.4	37.9
Italy	22.1	28.6
The Netherlands ^a	4.7	25.4
France	10.0	20.2
Belgium	3.2	14.1

Note: a) The Netherlands and the UK are still large gas producers on their own; their dependency level on Russian gas is therefore rather misleading.

Source: Gazprom Annual Report 2006. Moscow: Gazprom (2007), pp. 49-50; BP Statistical Review of World Energy, June 2007, p. 30; own calculations.

Table 4: EU-27 Natural Gas Supplies, 2006

	Volume (in bcm)	Percentage of the total supplies
EU-27 production	195.3	42.2
Russia	118.7	25.7
Algeria	54.6	11.8
Norway	46.6	10.1
Nigeria	13.5	2.9
Egypt	8.5	1.8
Libya	8.4	1.8
Others	17.0	3.7
Total	462.6	100

Source: BP Statistical Review of World Energy, June 2007, pp. 24, 30.

Will Russia Create a Gas Cartel?

By Matteo Fachinotti, Zurich

Abstract

The media has hyped the idea of a new gas OPEC which could menace the European Union with the specter of even higher prices for natural gas. This speculation has little to do with reality however. Numerous obstacles will prevent the formation of such a global cartel. Nevertheless, other types of producer alliances may be possible and these deserve careful attention.

Rhetoric Currently Exceeds Reality

“Europe, the U.S., and Asia should be doing everything possible to prepare for the possible future of a natural gas cartel. Gazprom is already actively engaged in anti-competitive policies to pre-empt, disaggregate, and coordinate the energy market.” This warning from Robert Amsterdam, a former legal counsel to Yukos, is an example of a recent trend in the Western media portraying the threat of a gas cartel led by Russia as the next step in Russia’s attempt to control energy flows to Europe. This interpretation is exaggerated.

To be sure, the rhetoric of the Russian leadership with regard to the possibility of a gas cartel has not helped to ease Europe’s fears. At the end of 2006, Vladimir Putin responded publicly to Iranian President Mahmoud Ahmadinejad’s proposal that a gas OPEC was “an interesting idea and we will think about it.” In January 2007, a deal between Algeria (the second largest supplier of natural gas to Europe) and Russia to boost energy cooperation seemed to confirm to the already suspicious Europeans that Russia was up to something that meant bad news. During his visit to Qatar in February 2007, Putin reiterated that “we do not reject the idea of creating a gas cartel.” Moreover, the Kremlin leader announced that Russia will send a high-level delegation to the Gas Exporting Countries’ Forum (GECF) meeting in Doha on April 9, 2007, where the issue of creating a gas cartel has been formally put on the agenda.

All these developments feed into the Western view of an increasingly aggressive Russia trying to use energy as a weapon against Europe by creating a gas-OPEC. The reality, however, is more complex. Several senior Russian officials described the idea of a cartel as ludicrous. A Kremlin spokesman said there was “no substance at all” to this claim, and that Russia’s main approach to energy policy remained “interdependence of producers and consumers.” Minister of Energy Viktor Khristenko commented that there were no objective grounds to create a gas cartel. Indeed, the consensus among energy experts is that such a cartel is simply not feasible for a variety of reasons related to the structure of the gas market and the irreconcilable interests of some of the major players. Of course, from the point of view of Europe, the net result of these conflicting signals is a big question mark about what the Russians are up to. In this context, the talks at the GECF meeting in Doha will be watched carefully.

Obstacles to a Gas Cartel

The GECF was created in 2001 in Teheran and it has been described as a potential institutional framework that will slowly evolve into some kind of producers’ cartel. However, in its six years of existence, the GECF has not been able to produce any significant agenda. It has functioned essentially as an informal discussion platform, and its organization has been frequently chaotic, as illustrated by the collapse of the Venezuelan presidency in 2006.

The heterogeneous membership of the organization has played a large role in the lack of clarity about the objectives and the functioning of the organization. It brings together LNG exporters focused on the Atlantic Basin (Algeria, Nigeria, Libya, and Egypt) and the Pacific Basin (Indonesia, Malaysia, and Brunei), as well as large pipeline exporters such as Russia. Other major pipeline players, like Canada, are not part of the forum, while Norway only has observer status. Iran, one of its most active members, is not yet an exporter of any significance, despite its future potential.

Another important reason why experts doubt the success of a gas OPEC is related to the structure of the world gas market, which is actually not a single market like the one for oil, but a series of regional markets.

Those who argue that establishing a cartel is indeed a possibility generally point to the high concentration of gas reserves in a small set of countries. Taken together, the top five countries by size of reserves (Russia, Iran, Qatar, Saudi Arabia and the UAE) control 62 percent of the world's total reserves. Additionally, the seven largest exporters account for 80 percent of world gas trade, a very high level of concentration. But these figures also mean that a cartel excluding one of these countries, such as Russia (which accounts for 30 percent of world exports), would not wield extensive market control. This fact is important since many analysts agree that at least in the medium-run, Russia's interests diverge from those of other major exporters, particularly Qatar's.

Russia historically has relied on long-term contracts to deliver gas via pipeline to European markets. Gazprom has often indicated that long-term contracts are its preferred option in order to sustain the massive infrastructure investments needed to bring Russian reserves to market. Russian policy-makers continue to stress the importance of security of demand and deem a continued reliance on pipelines and long term contracts as the most effective way to achieve this goal. Qatar is in a distinctly different position, being the world's largest LNG exporter. The Qataris made significant investments in developing LNG technologies and know-how, and they have little incentive to enter into a formal alliance with Russia, which is almost exclusively oriented towards a continental pipeline market. Like Qatar, Algeria has relatively well-developed LNG production, but also has significant pipeline exports to Europe. However, Algerian reserves, albeit significant, do not match those of Qatar, and, in the long run, the Algerians may have an interest in gaining access to the Russian fields.

Most experts agree that a potential gas cartel would only be possible if a truly global market for natural gas developed. Such a development can only take place if LNG plays a much larger role relative to pipeline delivery. Otherwise, prices will continue to be based on the specific features of each market, preventing any possibility for agreement. Currently, LNG trade accounts for less than 10 percent of global gas trade. Given the costs involved in developing the infrastructure to support a global LNG market, the possibility that a real world market based on LNG will emerge is a distant prospect at best. Moreover, if Russia – which is years behind countries like Qatar and Algeria in terms of LNG technology – resists the trend because of its continued focus on pipelines and long-term contracts, the market might well remain fragmented for a long time.

The size of investments in gas projects is also likely to be an important consideration in setting up capacity control mechanisms in a potential cartel. Indeed, a key condition in effectively controlling world prices is the ability to regulate capacity expansion and enforce quotas. Maintaining such oversight is likely to prove extremely challenging because the costs of gas development projects are enormous, and it will be very difficult for any producer artificially to slow down capacity expansion and restrain production given the massive opportunity costs involved. In the oil market, Saudi Arabia traditionally plays the role of swing producer by maintaining spare capacity, but it is unclear how this could be achieved with gas. Russia, which given the size of its reserves has often been described as a good candidate for the role of swing producer, is unlikely to have any real incentive to play this role. Unlike Saudi Arabia, Russia has a very large population and rising domestic gas demand. It would be politically damaging for any leader to maintain costly spare capacity under such conditions. Gas storage is very expensive and creates an additional obstacle to establishing spare capacity.

A further obstacle to creating an effective cartel is that unlike oil, gas has to compete against other types of resources. While petroleum cannot – at the moment – be replaced with other sources of energy in the transportation sector, gas in electricity and heating has to compete with alternative sources, such as oil, coal, hydro, and nuclear. As a result, producers have to be more careful about the risk of losing their market if price setting mechanisms seem unreliable to the consumer.

Other Forms of Producer's Agreements

If a real "gas-OPEC" is unlikely, one has to accept that other types of producers' agreements short of a formal alliance might emerge, at least with regard to certain regional markets. For example, LNG-exporters might have a real interest in working out production control agreements. LNG is traded separately on different regional markets, and prices are set in relation to different competing energy sources. Exporters in the Atlantic Basin in particular, may find it easier to establish common rules to cartelize this specific market, where spot-trading is expanding more rapidly than on other markets and where cooperation among the main players may be easier to achieve because of convergent interests.

Another idea proposed by Vladimir Putin is more straightforward bilateral coordination on energy projects. In this respect, Russia's current deal with Algeria might have a particular significance. The agreement provides for a swap of upstream assets between Sonatrach and Gazprom, as well as possibilities for Gazprom

to play a role in the distribution and marketing of Algerian gas to Europe. The source of potential worry for Europe, which views Algeria as an important component of its diversification strategy in gas imports, is not so much the creation of a full-fledged gas cartel. It is, rather, the fact that Algeria has a large outstanding debt to Russia related to recent large weapons purchases, which may weaken its ability to push ahead with projects that are not in Russia's interest. Indeed, Algeria's bilateral agreements in the economic and military spheres taken together put Russia in a position where it might be able to exert significant influence in order to prevent projects that compete with its own plans. Russia has a history of such practices: one example is the agreement between Russia and Turkmenistan, which allows Russia to purchase virtually all Turkmen gas until 2028 at a comparatively high price, in effect preventing the construction of any infrastructure projects linking Turkmenistan more closely to China. Such practices are common commercial behavior, but they may not always be in Europe's interest if competing projects were designed to build a more diversified supply.

Putin's idea that Qatar and Russia should cooperate more closely to ensure they will not be competing for markets seems rather unlikely to be realized. Qatar is planning to increase LNG exports not only to the US, but also to Europe in the near future. These intentions play well into Europe's strategy of import diversification, and the Europeans will be willing to pay high prices to achieve this objective. Furthermore, any agreement between Russia and Qatar would undermine the two sides' ability to compete for the best and most advantageous prices in this lucrative market. In this case, competition seems inevitable.

Both Russia and Iran have raised the possibility of collaboration, but the political obstacles are significant. As long as the nuclear issue is not resolved, Russia will not engage in serious collaboration in the energy sector because doing so would provoke a major dispute with Europe, its main consumer, and because emboldening Iran is not necessarily in Russia's interest either. In the medium run, it is not clear that the two countries would really have an interest in cooperation since they are likely to compete for the same markets. It seems unlikely that a country like Iran, which has an enormous potential for future exports to Europe that are not reflected in current sales, would want to agree on market shares at this point. On the Russian side, there are no incentives to help a competitor emerge from its current state of isolation.

Russia's Risky Strategy

While several Russian Duma members claim that a gas alliance would boost Russian interests, a closer look at Putin's declarations reveals a much more prudent approach. His cautious language demonstrates a clear realization that it is not in the interest of Russia to create an organization that will push its customers to diversify away from natural gas. Indeed, as noted above, natural gas competes against other sources of energy for most of its end-uses. The emergence of an organization like OPEC for gas could well tip the balance in favor of other sources for many consumers.

In this light, one may wonder why the Kremlin has frayed European nerves by repeatedly discussing the possibility of a gas OPEC only to contradict itself in subsequent statements? The answer might well be that it is a purely tactical move. One hypothesis is that by convincing many Europeans that a gas OPEC is a realistic threat, Putin can gain a valuable bargaining chip. Even if he realizes a gas OPEC is never going to happen, maybe Europeans, blinded by fear, do not. The next step is to ask for something in return for dropping the idea of a gas cartel. The Europeans may allow Gazprom to make controversial acquisitions in the European distribution markets for instance, if in return they receive assurances from Putin that a gas cartel will not be formed. Or they may be much more careful when it comes to placing U.S. missiles close to Russia's borders. The irony being of course, that experts (and maybe Russian officials too) have long understood that a gas cartel was not something that really made any sense.

Russia has embarked on a risky strategy, and it may well backfire. In March, the Europeans agreed for the first time on common targets for bio-fuels, renewable energy technologies and carbon emission reductions, objectives that will decrease Russian and European interdependence and reduce Russia's ability to achieve demand security. This new consensus among the Europeans certainly is a consequence of the recent threatening discourse Russia has adopted.

About the author:

Matteo Fachinotti wrote this article when working at the Center for Security Studies, ETH Zurich. He is now with the Swiss Federal Department of Foreign Affairs. He holds an M.A. in Security Studies from the School of Foreign Service, Georgetown University.

Suggested Reading:

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Russia's New Political Leadership and its Implication for East Siberian Development and Energy Cooperation with North East Asian States

By Yoshinori Takeda, Moscow

Abstract

The transition from Putin to Medvedev marks an important new beginning for the future of East Siberian energy resources and their impact on Russia's Asian neighbors. East Siberian resources have not been developed, but could have great impact on Russia's relations with Asia. China currently has the best relations with Russia, while Japan has made little progress, and Korea has secured one major deal. The Korean arrangements with Russia could serve as a model for future ties because they strongly favor the Russian side, which maintains a 60 percent share of the project while taking on little risk. In the future, Russia's energy decisions will continue to have strong political motivations, but they will be based on better defined rules of the game. Essentially, Russia will use its energy resources to develop the Russian state and only allow foreign companies to participate in projects that meet Russia's national interest.

From Putin to Medvedev

The process of political and economic modernization in Russia entered a new phase on December 10, 2007, when President Vladimir Putin chose First Deputy Prime-Minister Dmitri Medvedev as Russia's next president. Medvedev's nomination clearly demonstrates that over the next four years Russia will seek further economic growth and the social welfare benefits that derive from such growth. Medvedev has been a close ally of Putin's for the last decade, but he is not a former secret service officer. In addition, Medvedev is less hawkish than others surrounding Putin.

Meanwhile, the Russian government is moving extremely slowly in diversifying the economy, a move seen as necessary to ensure continuing economic prosperity regardless of the cost of raw materials. Since almost 70 percent of Russia's budget revenues and export value derive from primary commodities, Medvedev will have to take serious measures towards economic diversification while Russia remains dependent upon oil and gas. Against a backdrop of historically high oil prices, this economic course would help Russia pursue its geopolitical strategy in the foreseeable future and lead the nation to a position of global influence and power with its oil and gas reserves.

Among Russia's oil deposits, East Siberia is the most underdeveloped region. In 2006, its total crude oil production amounted to only 0.7 million tons, or 0.1 percent of the national total. Although East Siberia's oil reserve is estimated to be approximately 75 billion barrels (10.2 billion tons), proven crude amounts are only 7 billion barrels. In addition, exploration has barely begun beyond two fields – the Verkhnechon field in the Irkutsk region and the Talakan field in the Sakha republic. Even Putin, who has shown intense interest in the economic and social development of East Siberia and the Far East by funding a federal program for the region's growth with \$24 billion from the state budget in 2007, has done little to spur a search for crude oil in East Siberia. For Medvedev, encouraging exploitation of new fields may be key to averting an expected future drop in Russia's oil output. It may also provide important leverage vis-à-vis Asian countries, especially China, Japan and South Korea.

Russian-Asian Energy Relations: Current Circumstances

Throughout the second term of Putin's presidency, China has been undoubtedly the front-runner in energy cooperation with Russia. A major milestone of Sino-Russia energy relations was the \$6 billion loan from the China National Petroleum Corporation (CNPC) to Russia's highest-producing state-owned oil company, Rosneft, in early 2005. This financial resource made it possible for Rosneft to purchase Yuganskneftegaz, the main subsidiary of the former Yukos, at a state-run auction. 2005–2006 saw a series of important deals between Moscow and Beijing: Rosneft and CNPC formed a joint venture for upstream projects in East Siberia; CNPC and Transneft, Russia's state-owned oil pipeline monopoly, agreed to build a Chinese branch of the East Siberia – Pacific Ocean oil pipeline project (ESPO) funded with Chinese money; and CNPC and Gazprom, the world's No. 1 gas company, proposed an ambitious plan to build two huge gas pipelines to China by 2011. These proj-

ects are, however, being very slowly developed. While Vostok Energy, the joint company established by Rosneft and CNPC, won two small oil and gas wells in East Siberia at an auction for \$45 million, the spur of the ESPO has not yet reached the Sino-Russian border, and the gas pipeline projects are on the verge of collapse.

Japanese-Russian energy talks have been held around the ESPO project (a pipeline originating in East Siberia in Taishet, Irkutsk region, and extending to a Pacific port at Kozmino bay, in the Primorsk region). Regarding this colossal venture, Japan took the position that pipeline economics was not an issue since governments (Russia, Japan and other countries concerned) could provide long-term credits, tax exemptions and subsidies to lower the pipeline's cost. This perspective led Tokyo to raise two points at the negotiating table: exploring reserves in East Siberia and funding for feasibility studies and the construction itself. However, no real progress in Japanese-Russian cooperation in ESPO construction, including upstream projects in East Siberia, has been reported so far. In the meantime, Japanese companies have begun to show interest in other spheres of energy relations, like participating in Gazprom's projects and Rosneft's downstream business (such as oil refineries).

The South Korean economy is not as large as that of China or Japan and, consequently, its energy cooperation with Russia is not substantial, so far. Still, the South Korean national oil company (Korean National Oil Corporation, KNOC) and Rosneft have made one impressive agreement to develop the West Kamchatka shelf that is estimated to hold about 900 million tons of oil equivalents at 26 sites. This deal will become a good model for Asian countries aiming at pragmatic energy cooperation with Russian state-owned oil companies for two reasons. First, KNOC could successfully avoid the strategic fields issue. While the Kremlin's definition of the phrase "strategic field" is not clear and is mostly subjective, one thing is beyond doubt: the participation of foreign companies in projects at strategic deposits is highly politicized and strictly limited. West Kamchatka, however, is apparently not a strategic field for Moscow due to its geographical location (11,000 kilometers, or 6,900 miles from Moscow) and the volume of its deposit. Second, the Koreans have agreed to two key conditions and thus could satisfy Rosneft. The first condition is a 60–40 share division, i.e. Rosneft holds a 60 percent share of this project. This number is important for Rosneft, which wants to promote projects with foreigners from a superior position. The other condition is that the Korean company will invest in prospecting operations, taking on 100 percent of the risk in exploration, and Rosneft will be able to claim a share of the revenues once commercial production begins.

After 2008: a New Hope for Foreigners, including Russia's Asian Neighbors

The slow development of Russian energy cooperation mentioned above has been a problem, not only for Asian countries, but for the U.S. and European partners, as well. Political uncertainties in 2007, due mainly to the lack of clarity about Putin's successor, and the lack of clear rules of the game in Russia's energy policy delayed many projects, while Russia's federal budget enjoyed extra revenues thanks to record-high oil prices.

Perhaps 2008 will see a change in such circumstances. Medvedev's presidency will bring some new elements into Russia's energy policy, including its relations with East Siberia. In attempting to read the future of East Siberia and its implications for Asian countries, it is worth paying attention to two points: political motivation and the formation of the rules of the game.

Political Motivation

Undoubtedly, Moscow can now effectively use its energy resources as tools of geopolitical strategy; i.e. most of the Kremlin's decisions on energy issues are politically motivated. Since 2000, Russian President Vladimir Putin has strongly driven foreign and domestic policy under the slogan of a "strong and self-confident Russia." During the eight years of his presidency, the world's macroeconomic climate, including exceedingly high-priced fossil fuels, allowed Russia to consolidate its role in global politics and markets, especially in the energy field. In spite of criticism from the West towards Moscow's energy leverage, we see no setback to Russia's geopolitical strategy using its rich energy resources. On the contrary, Russia is coming to a position of global influence and power with its oil and gas reserves.

Political incentive plays all the more vital a role in the development of East Siberia because, without special arrangements by the government, it is almost impossible, even for inefficient Russian state-owned companies, to tap new resources that sit under one of the world's most forbidding terrains. Tax holidays of up to ten years for companies developing oil deposits in East Siberia introduced by the Russian government in 2006 are a case in point. Then Minister of Economic Development and Trade German Gref explained the reason for this move, saying that the tax holiday decision and the ESPO project would help increase oil production in East Siberia. Moreover, the Kremlin has a strong political motive to utilize Rosneft and Surgutneftegaz, fourth in

oil output among Russia's oil companies and totally loyal to Putin, as tools of East Siberian development. In May 2007, Surgutneftegaz's CEO Vladimir Bogdanov, announced that the company's future production in West Siberia would be flat, with all its output growth likely to come from East Siberia.

This political motivation will certainly lead the Siberian pipeline to the Pacific Ocean, despite uncertainty over the oil reserves and the profitability of this pipeline. 2007 saw some negative elements in the construction of the ESPO: a serious delay in the ESPO's first stage construction (up to Skovorodino, a town in the Irkutsk region near the Sino-Russian border) and the postponement of the start of the ESPO's second stage construction (to Kozmino bay). However, one should take into account the fact that the ESPO is Putin's project. His involvement practically assures the completion of this gigantic project, despite the many negative observations uttered by officials and specialists. A scenario in which the pipeline is not built can be excluded.

The Rules of the Game

The formation of the rules of the game in Russia's energy policy is another decisive factor that could encourage fundamental progress in energy-related business. Actually, throughout the eight years of Putin's presidency, especially after the Yukos affair in 2003, unwritten rules have been formulated. The essential one is simple: Russia has enormous natural resources and should utilize them effectively to attain the social and economic development of the state. Two more fundamental unwritten rules can be added: first, the state must control the export of its resources; second, foreign investors are welcome only when they are ready to participate in projects that answer principally to Russia's national interests.

Now, Moscow is moving to the formation of clear rules, particularly with the adoption of a new version of the subsoil law. For most of Putin's presidency there has been a heated discussion on the bill amending the existing subsoil law. The crucial issue over the proposed amendment is the extent of foreign companies' access to Russian deposits. Until quite recently, the draft completely prevented foreigners from working strategic deposits, which undoubtedly means all large promising oil and gas fields and whose ultimate definition will depend on the Kremlin's subjective decisions. After the nomination of Medvedev, a new move appeared: Minister of Natural Resources Yuri Trutnev stated that his ministry would make a change in the bill and that all issues, including foreigners' participation in strategic deposits and foreigners' access will be discussed by a government committee.

Who Wins?

The idea of establishing a government committee will not increase the transparency of the decision-making process, which is an essential element of corporate governance in the West, but will only add to the existing impression of decision-making behind closed doors. The important point is, however, that the Russian government has expressed its intention to form rules of the game in energy policy. After the long-term twists and turns in the amendments to the subsoil law, the bill will be approved by the newly formed State Duma in the near future, perhaps under Medvedev's presidency. Now, it is clear that political motivation and rules of the game matter for everyone who wants to profit from Russia's natural resources.

As discussed above, these two factors are decisive for East Siberian development since it requires strong political will and enormous funding. Among potential foreign partners, China is already two-three steps ahead since Beijing understands well the importance of the political incentive and has successfully formed a strategic partnership relationship with Moscow in recent years. Moreover, China and India, which buy Russia's military weapons and satisfy Moscow with the formation of a trilateral grouping against U.S. unilateral hegemony, enjoy the advantages of barter trade with Russia and are ready to join upstream projects in East Siberia. However, Japan, South Korea, and even the United States and European countries are not too late for this race. The winner will be the one that understands Moscow's rules of the game and can utilize Russia's political motivation and its own capital.

About the author:

Yoshinori Takeda is a Japanese diplomat in Moscow. This paper represents the author's personal views and should not be construed as reflecting the position of the government of Japan.

Part IV: Ecological Challenges

Russia and Global Warming – Implications for the Energy Industry

By Roland Götz, Berlin

Abstract

Climate change could make it more expensive to extract oil and natural gas from current and future sites in Russia. The melting of the permafrost, in particular, will impose a wide variety of costs. Many of these consequences are already being felt in Alaska. However, as long as oil and natural gas prices remain high, these projects will remain profitable.

Siberian Extraction Fields Moving North and East

The main Russian oil and natural gas extraction fields are currently in the northern part of Western Siberia. Because the deposits there are largely depleted, new oil and gas fields must be developed. New reserves are located in the northern coastal areas of Siberia and in the east of the country. In the future, natural gas will mostly be extracted on the Yamal Peninsula, offshore in the Barents Sea (Shtokman Field), and the Kara Sea, as well as in Eastern Siberia and in the Far East, on the Sakhalin Peninsula.

The distances for transporting resources from the new production zones to the consumer centers in Western Russia and Europe will be greater than for current production. Additionally, extraction and overhead costs will also increase because of the extreme climate with long and frigidly cold winters and the difficult hydrological conditions in the future production areas.

Russia has already invested enormous technical and financial effort into the current oil and gas extraction facilities, as well as pipeline construction in the Western Siberian taiga, since large swathes of that area are covered by swamps. Trains, roads, industrial facilities, and even entire settlements had to be constructed on sand foundations. The expansion of natural gas extraction to the tundra north of the taiga creates additional problems because that area is covered by permafrost.

Permafrost

Permafrost is permanently frozen ground varying in depth between several meters and several hundred meters, depending on air and ground temperatures and the properties of the soil. In Siberia, permafrost soil can be found reaching down to several thousand meters. The top, or “active” layer, thaws in spring and summer to a depth of between several centimeters and several meters, and then freezes again.

When the “active” layer melts in spring, the water cannot drain off because of the frozen ground below. The result is the formation of pools and lakes as habitats for plants that subsequently decompose. Because of the cold and wet climate, more humus is produced than can decompose, and peat is formed. Therefore, the permafrost soil in Siberia consists mainly of frozen peat soil containing ice deposits. When this ground ice melts, ground depressions are formed. The result is a hilly landscape known as thermokarst. Water aggregates in the hollow depressions, and lakes are formed.

During the summer, part of the organic material in the thawed ground is converted by microorganisms into methane and carbon dioxide, and these greenhouse gases are released into the atmosphere. All of these effects are reinforced and accelerated by global warming, speeding up the process.

Global Warming and the Thawing of the Permafrost

The temperature of the ground in Russia is rising at an accelerating rate. It rose by 0.4 °C just between 1990 and 2000, while the overall increase in the previous 100 years had been 1 °C. Russian officials expect a further increase by 2030, as described in Figure 1 overleaf.

Since the 1980s, temperatures in different parts of Siberia have risen between several tenths of a degree and two degrees. The result is that the permafrost thaws to increasingly deeper levels during the summer, and the thickness of the “active” layer grows. Thaw periods begin earlier in the year and end later. Plant growth is boosted and the volume of greenhouse gas emissions increases.

The melting of the snow cover and the spread of dark water patches accelerate the thaw of the permafrost. In winter, conversely, the ground freezes more slowly because the water serves as an insulating layer. The out-

come is a self-reinforcing process of permafrost thawing. In the southern permafrost regions, the permafrost soil finally vanishes completely, the ground dries out, and the permafrost border moves further north.

The thawing of Siberia's peat bogs, which has been happening for several years at an unexpectedly rapid pace, not only releases the carbon-dioxide that is captured inside of them, but also changes the soil composition. This process creates thermokarst, resulting in depressed areas and lake formation. The ground thaws to deeper levels and remains unfrozen longer than before.

Effects on the Economy

Researchers are already studying the effects of global warming, and specifically the thawing permafrost throughout the arctic region, on living conditions and the economy in Siberia. However, the public largely ignored these investigations for a long time – a situation that has only recently begun to change. It was not until 2005, when Judith Marquand (University of Oxford/England) and Sergey Kirpotin (University of Tomsk/Russia) reported on the increasing thaw of the permafrost soil in Siberia, that the issue began to receive broader media coverage. Independently, the Russian state's Federal Hydrometeorology and Environmental Observation Service (Roshydromet) in 2005 presented a "Strategic Forecast of Climate Change in the Russian Federation 2010–2015 and Its Impact on Sectors of the Russian Economy." It is the first report by a respected Russian institution to acknowledge the dangers from climate change by 2015 for human settlements, infrastructure, and the economy.

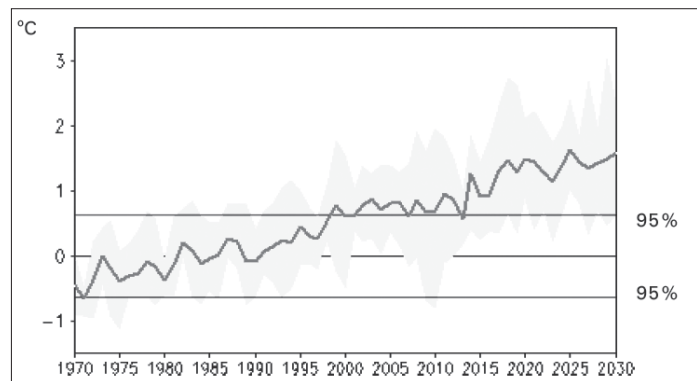
According to this report, some of the key current extraction areas for natural gas in Western Siberia and the future natural gas production regions on the Yamal Peninsula will be affected by thawing permafrost soil. The period during which the frozen ground can be traversed by vehicles will be reduced, making the development of new extraction areas more difficult. Buildings, traffic routes, and industrial facilities that are not anchored to sufficiently strong foundations will be threatened as the shifting ground endangers their structural stability. Likewise, oil and gas pipelines operating at high pressure could suffer damage. Pipelines and other oil and gas extraction facilities will require repairs more often. Pipelines constructed before 1990 are particularly likely to suffer disruptions. In the Arctic Ocean, the danger of icebergs will increase, threatening not only shipping, but also oil and gas drilling rigs. High waves and storms will occur more frequently, impeding shipping and therefore maritime supply lines.

Consequences

In order to minimize the consequences of the shrinking Siberian permafrost for the Russian economy, especially the energy industry, the existing infrastructure, such as mining facilities, pipelines, compressor stations, storage tanks, auxiliary buildings, and the roads and railways leading to the oil and gas fields, will need to be moored more firmly in the ground than is currently the case. New extraction and pipeline projects must be designed and built accordingly.

Pipelines can either be supported by struts driven into the frozen ground or designed as subterranean conduits. In the latter case, however, they must be insulated to avoid any further underground thaws. In both cases, the melting permafrost layer problem complicates construction plans. Investments for the projects in question will be higher than originally projected. Since the period in which ice roads can be traversed during the winter will be shorter, supplies will increasingly need to be flown in by aircraft. The builders of

Figure 1: Average Increase of Ground-Level Air Temperature in Russia by 2030, Compared to 1971–2000.*



* Surface air temperature rise in Russia computed with a group of models up to 2030, relative to the reference value of 1971–2000, based on computations made by the Voeikov Main Geophysical Observatory. The range of the different models included in the group is described by the grey region, which comprises 75 percent of the average model values. A 95 percent confidence interval of temperature changes averaged over the group of models is specified by two horizontal lines.

Source: Federal Service for Hydrometeorology and Environmental Monitoring (Roshydromet), *Strategic Forecast of Climate Change in the Russian Federation 2010–2015 and Its Impact on Sectors of the Russian Economy* (Moscow 2005), www.meteorf.ru/en_default.aspx.

the Trans-Alaska Pipeline System have already had to contend with this problem. A 2003 study prepared by the U.S. Global Change Research Program (USGCRP) examining the consequences of climate change in Alaska state that:

“Building on permafrost can incur a significant cost because it requires that structures be stabilized in permanently frozen ground below the active layer, and that they limit their heat transfer to the ground, usually by elevating them on piles. For example, to prevent thawing of permafrost from transport of heated oil in the Trans-Alaska pipeline, 400 miles of pipeline were elevated on thermosyphon piles (to keep the ground frozen), at an additional cost of \$800 million. The pipeline was completed at a cost of \$7 billion because of ice-rich permafrost along the route. This figure is eight times the estimated cost of installing the traditional in-ground pipeline.

Breaks in the pipeline and other repair costs due to melting permafrost could become even more significant in the future. The near-term risk of disruption to operations of the Trans-Alaska pipeline is judged to be small, although costly increases in maintenance due to increased ground instability are likely. The pipeline's support structures are designed for specific ranges of ground temperatures, and are subject to heaving or collapse if the permafrost thaws. Replacing them, if required, would cost about \$2 million per mile.

Thawing of ice-rich discontinuous permafrost has already damaged houses, roads, airports, pipelines, and military installations; required costly road replacements and increased maintenance expenditures for pipelines and other infrastructure; and increased landscape erosion, slope instabilities and landslides. Because of melting permafrost, buildings already have been abandoned, including homes, a radio transmitter site near Fairbanks, and a hospital at Kotzebue, to name a few. The impact on subsistence communities has also been seen, is expected to increase, and is difficult to quantify in dollars. Alaska's warming climate has, for example, thawed traditional ice cellars in several northern villages, rendering them useless.

Present costs of thaw-related damage to structures and infrastructure in Alaska have been estimated at about \$35 million per year, of which repair of permafrost-damaged roads is the largest component. Longer seasonal thaw of the active layer could disrupt petroleum exploration and extraction and increase associated environmental damage in the tundra, by shortening the season for minimal-impact operations on ice roads and pads.”

There may be some advantages from climate change to the Russian energy industry. Global warming will further reduce the freezing of the northern seas and will make maritime routes more easily navigable with and without icebreakers. It is likely that the northern sea route from the Atlantic to the Pacific will be ice-free for part of the year, and eventually all year round. This would allow oil and liquefied natural gas to be transported by tanker from the northern coasts of Russia west- or eastwards. Only short pipelines to the northern ports will be required, while the up to 5,000 km of pipelines running from Western Siberia to Europe may not be overhauled after the end of their life cycle.

Nevertheless, the thaw of the permafrost ground is likely to increase the costs of natural gas and oil extraction in the very parts of Siberia where extraction is already expensive today. Since the price of natural gas in Europe is linked to the price of oil, and not to the extraction costs for gas, however, consumers will not notice the changing prices.

Should the price of oil, and therefore the price of natural gas in the European market, remain high, planned major projects for natural gas extraction in Russia will remain profitable and will proceed. However, Gazprom will exert even greater pressure to raise its gas prices to the European levels both domestically and in transactions with CIS customers.

As predictions regarding the outcomes of global warming remain uncertain at this point, the future amount of thawing in the permafrost layer can only be forecast to a limited extent. Both acceleration and delays of this process are possible. Should the consequences outlined above for Russia be confirmed, however, many more capital investments will be required to maintain or increase oil and natural gas extraction. Such expenditures will be forthcoming as long as oil and related natural gas prices remain at high levels.

Translated from German by Christopher Findlay

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Energy Savings in Russia – Political Challenges and Economic Potential

By Petra Opitz, Berlin

Abstract

Russia's economy is one of the most energy inefficient and carbon dioxide (CO₂) intensive in the world. Russia produces as much CO₂ per capita as Germany, yet the amount of energy consumed per unit of Russian gross domestic product (GDP), measured in purchasing power parity, is almost three times larger than in Germany. There are numerous ways that Russia could save energy, but currently the incentives are not right to encourage such savings. Although Russia's leaders talk about this problem, they will need political will to implement effective solutions.

Russian Energy Efficiency Lags Behind Western Standards

Russia's Energy Strategy until 2020, which was adopted in 2003, assumes a tripling of the GDP with only a 40 percent increase in energy consumption. Russia's leaders hope to achieve this goal by implementing technological and organizational energy-saving measures, as well as introducing structural changes in the economy.

These scenario planners estimated Russia's energy saving potential to be about 278 million tons of oil equivalent (Mtoe). This amount corresponds to 43 percent of Russia's primary energy consumption during 2004, or twice the current exports of natural gas to the European Union.

In fact, the assumptions of the Energy Strategy turned out to be too conservative for the period 2000–2004, underestimating Russia's real energy efficiency potential. Estimates for 2006 show that GDP growth until 2006 was much higher, 43.9 percent compared to 2000, than the forecasted 33.9 percent, but energy consumption was less than (2005) or equal to (2006) the forecast. Therefore, energy intensity decreased more (up to 23.3 percent compared to 2000) than assumed in the Energy Strategy to 2020 (about 17.7 percent). This achievement was mainly the result of a more rapid structural change of the GDP than previously expected. The share of the low energy intensive sectors has increased considerably more rapidly than the other sectors.

According to the Energy Strategy, in 2020 Russia's GDP should reach an energy intensity level of about 0.29 kgoe/USD (PPP) [kilograms of oil equivalent per dollar at purchasing power parity] (See Figure 1 on p. 92). If so, Russia's economy in 2020 would still be twice as energy intensive as today's EU average. Thus, Russia's gains in energy efficiency are more than anticipated, but far below what potentially could be achieved.

Enormous Potential for Energy Savings

Russia can realize much of its energy saving potential at low cost. According to Russian Ministry of Industry and Energy estimates, approximately 20 percent of the energy saving potential can be achieved for as little as \$20–\$50/t of coal equivalent.

A closer look at the structure of Russia's energy efficiency potential shows that the main opportunities for savings are within the energy sector and the communal services sector (see Figure 2 on p. 92).

Major efficiency potentials within the energy sector are:

- Reducing the amount of flared gas at Russian oil wells and converting this gas to energy. Estimates about the amount of gas flaring in Russia range from 15 to 42 billion cubic meters (bn m³), creating between 43 and 124 million tons of CO₂.
- Cutting losses in natural gas transmission and distribution. Losses amounted to about 10 percent of the 656 bn m³ transported in 2006, or approximately 65 bn m³. Up to 20–25 bn m³ of these losses could be prevented, according to World Bank estimates. Thus, about 3–4 percent of current natural gas production could be saved.
- Increasing the efficiency of oil refineries. About 50 mn t of oil could be saved annually if the processing depth of Russia's refineries reached 90 percent.

- Replacing outdated power stations with modern gas-steam turbines and gas turbines. An annual savings of about 50 bn m³ of natural gas could be achieved.
- Improving the domestic heating system. 70 percent of Russia's heating comes from centralized heat supply systems. Experts have identified the potential for huge energy savings in the heat generating process, particularly by replacing outdated boilers with combined heat and power generators (CHP) and modernizing more than 48,000 small boilers with an efficiency factor of $\leq 30\%$. In addition, losses in the heat supply systems, which on average amount to 8.6 percent of the heat generated could be substantially reduced and the fuel mix in heat generation could be improved.

Additionally, Russian industry has an enormous potential for introducing greater energy savings. The energy efficiency of many technologies is still far below respective standards in Europe and even the US. For example, the energy intensity of technologies in the iron and steel sectors is about 0.31 toe/t in Russia compared to 0.17 toe/t in the US, 0.12 toe/t in Germany, and 0.1 toe/t in Japan. Also, in the chemical industry, non-metal primary industry, and food industry, the energy intensity is twice as high as in Germany. Russia's minimum energy efficiency requirements are below international standards. Convergence in this field would help to increase the international competitiveness of Russian products.

Nearly one third of Russia's ability to save energy lies in the communal and housing sector. Due to institutional barriers, such as ownership questions, tariffs, and metering/billing issues, this potential remains almost untapped. Establishing apartment owner communities, which would essentially amount to converting Russian apartments into condominiums, will help to establish the legal basis for financing investment into refurbishing existing buildings, where energy efficiency measures will be one important component. In terms of energy pricing, state subsidies remain in place and few politicians want to risk public ire in removing them. Finally, thanks to Soviet era practices, when there were no meters on individual apartments, it is very difficult to measure and charge for individual consumption and therefore hard to encourage individuals to save energy by raising prices. Russia has introduced a number of communal housing sectors reforms to address these problems, but the process is only moving forward slowly.

Obstacles to Reform

Why has Russia been so slow in taking advantage of its huge potential to improve energy efficiency? For example, Russia could save large amounts of natural gas, which would then be available for export. There should be interest in using this potential.

Many proposed projects seeking to reduce natural gas consumption for domestic heating by introducing individual meters into private households, making it possible to bill households for their real heat consumption, were not implemented. Although the legislation is in place for this reform, actual progress has been slow. The main problem is the institutional structure of the heating sector, which is dominated by badly regulated supply monopolies. At present, they have almost no incentive to save energy since they can easily transfer their huge energy losses to the final costumers.

For natural gas supplier monopolist Gazprom, there are low incentives for energy savings on the consumer side. Many experts assert that Gazprom could benefit from energy savings on Russia's domestic market, where it must sell gas at regulated prices that are much lower than world prices, by making available additional amounts of gas for export to foreign markets, where international prices prevail. In practice, however, the situation is much more complicated and interests are different. Currently, Gazprom has no need to receive additional amounts of natural gas for export, because current contracts are secured over the next several years. If external demand for gas goes up in the future, Gazprom certainly will calculate which gas potentials to exploit at least cost. If exploiting the energy saving potential of the internal Russian market costs less than exploring and developing new gas fields or buying gas from Turkmenistan, Gazprom would have greater incentives to focus on increasing efficiencies. While exploiting new fields is expected to be extremely expensive, Gazprom currently is able to acquire relatively cheap gas from Turkmenistan.

In addition, the Energy Strategy until 2020 assumes that the structure of Russia's domestic energy demand should be changed in favor of increasing the share of coal burned in the country in order to fulfill future obligations in natural gas exports. Pursuing this strategy would, of course, increase Russia's CO₂ emissions. If, instead, Russia could take advantage of greater energy savings, there would be no need to burn more coal.

In Europe, a strong desire to mitigate climate change and the Kyoto Protocol provide strong incentives for developing energy efficiency potentials. In Russia, such incentives have much less influence. According to the Kyoto Protocol, Russia must hold greenhouse gas (GHG) emissions to the level of 1990. At the beginning of the 1990s, the Russian economy contracted and GHG emissions dropped sharply. In parallel with the country's recent economic recovery, emissions started to rise again, but most likely Russia will be able to meet its quantitative Kyoto commitments easily without further domestic measures. In 2004 Russia's GHG emissions reached a level some 33 percent below its Kyoto commitments. Thus, it has a surplus of Assigned Amount of Emissions (AAUs) of about 1 billion metric tons carbon equivalent (mtce) until 2012.

Using Joint Implementation (JI) under the Kyoto Protocol could provide new incentives for investing in energy efficiency projects by providing co-financing from selling Estimated Ultimate Recoveries (EURs) created by the projects. Western companies are strongly interested in such projects. On May 30, 2007, the Russian government issued a decree on the national JI procedure, which now allows for implementing the JI mechanism in Russia. Despite this advance, at the project level, the incentives to reduce CO₂ emissions have much less impact on energy efficiency improvement in Russia than, for example, in the EU member states. In Russia, there are no binding caps for CO₂ emissions on companies. The implementation of Green Investment Schemes, i.e. foreign investment for the transfer of AAUs, could also bring economic benefit. It could push for technological modernization and increased competitiveness within Russian industry. To the extent that energy efficiency technologies become a driver for economic growth, create competitive advantages and new jobs, and attract investment into these sectors, they could help the Russian government reach its political goal of increasing the share of higher value added sectors in the overall GDP. Currently GDP growth is driven mainly by energy exports rather than more desirable technology fields.

Although President Putin and some other Russian leaders have stressed the issue of energy efficiency, in practice, a real policy push is needed to put in place a legal framework that provides energy efficiency incentives for the development of technologies that will improve energy efficiency in all sectors of the economy where there are such potentials. As Western practice shows, improving energy efficiency requires a strong political will to implement an adequate legal and economic framework.

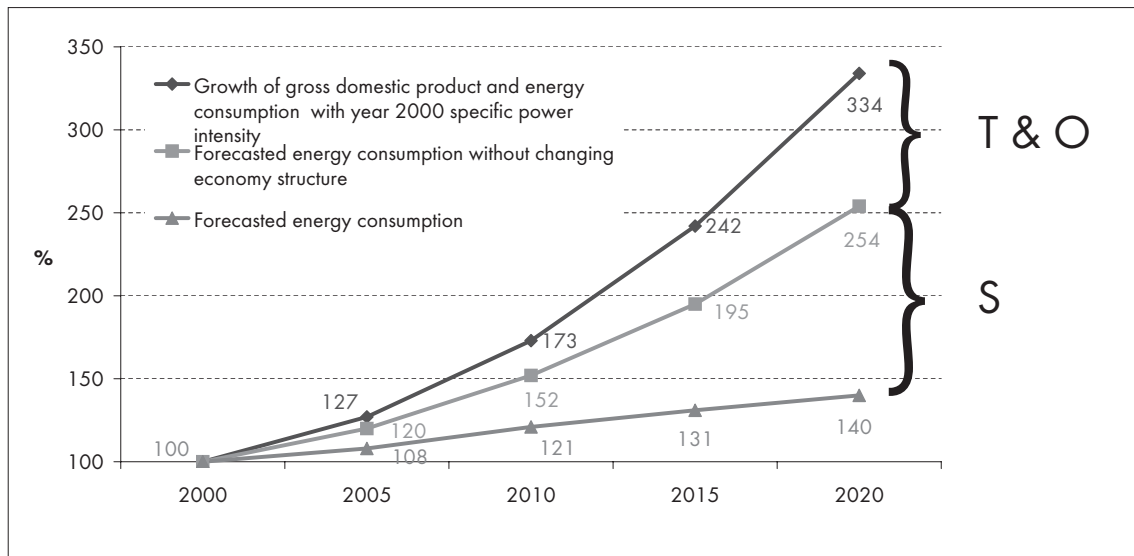
About the author:

Dr. Petra Opitz serves as the Head of Department at the German Energy Agency.

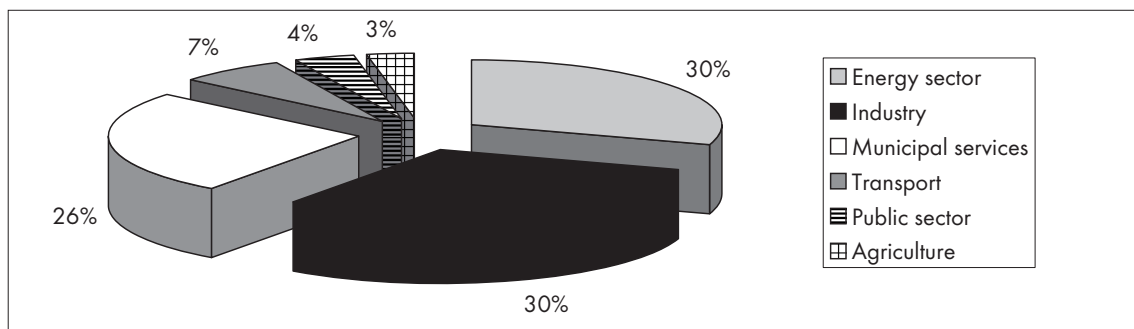
Table 1. Key Indicators, 2004

	Russia	OECD Europe	USA	Germany
Primary energy consumption per capita (toe/capita)	4.46	3.50	7.91	4.22
Energy intensity of GDP (kgoe/USD [PPP])	0.49	0.16	0.22	0.16
CO ₂ per capita (t CO ₂ /capita)	10.63	7.72	19.73	10.5
CO ₂ -Intensity of GDP (kg CO ₂ /USD [PPP])	1.17	0.35	0.54	0.43

Source: IEA

Figure 1: Forecast of Increase in Russian Energy Consumption, 2000–2020

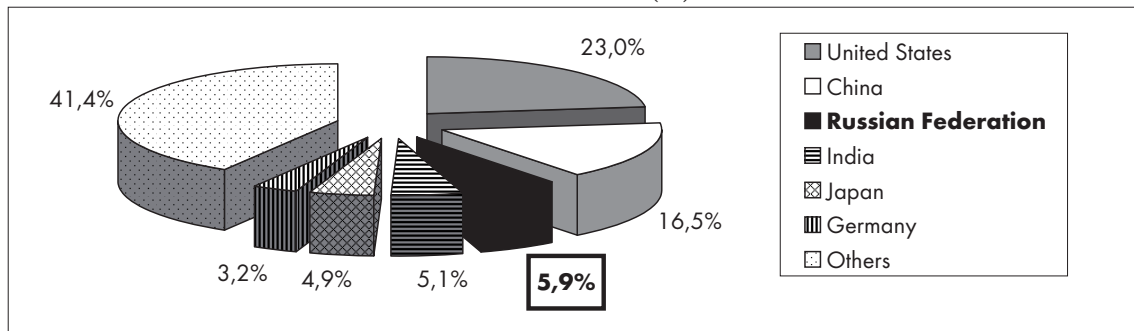
Source: *Energy Strategy of Russia until 2020*

Figure 2: Structure of Energy Efficiency Potential in Russia

Source: *Energy Strategy of Russia until 2020*

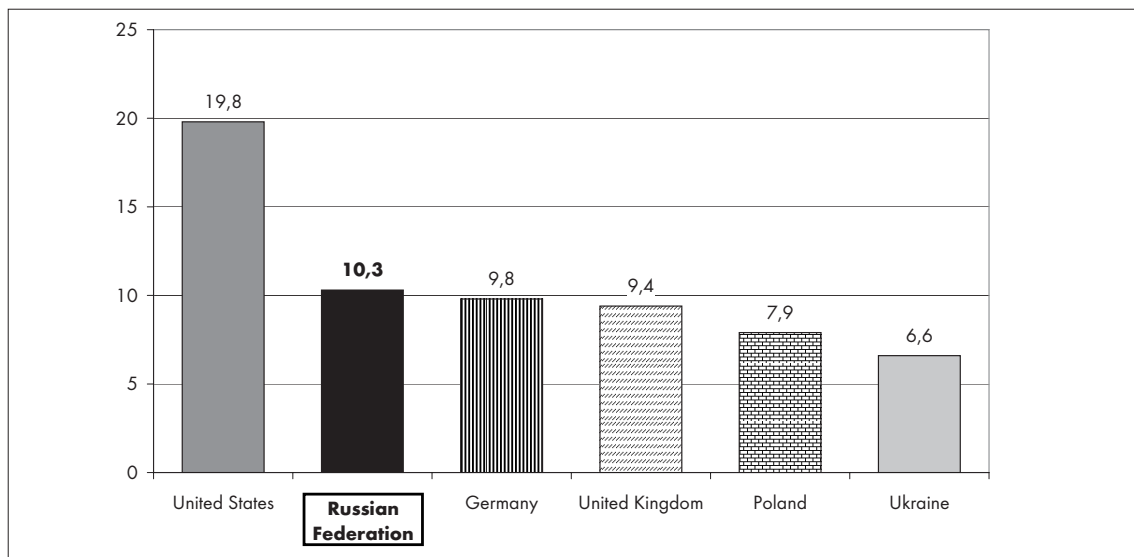
Russian CO₂ Emissions and Energy Consumption in International Perspective

Carbon Dioxide Emissions - Share of World Total (%)



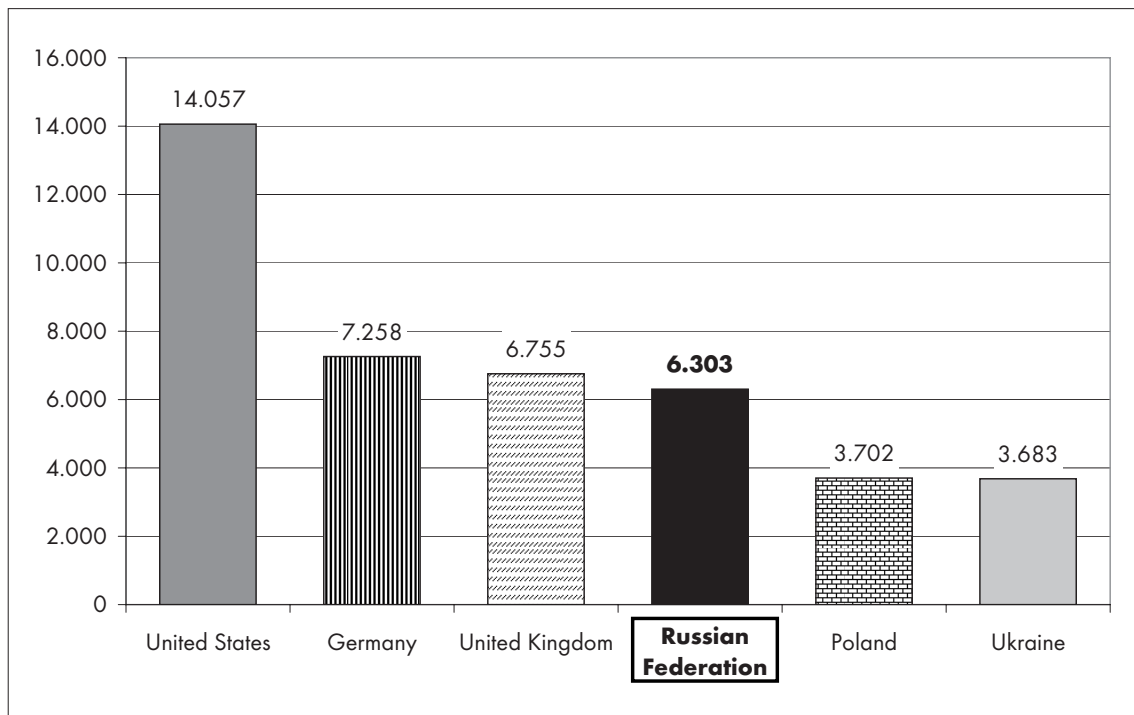
Source: *Human Development Report 2006*; <http://hdr.undp.org/hdr2006/statistics/indicators/204.html>

Carbon Dioxide Emissions – per Capita (Metric Tons)



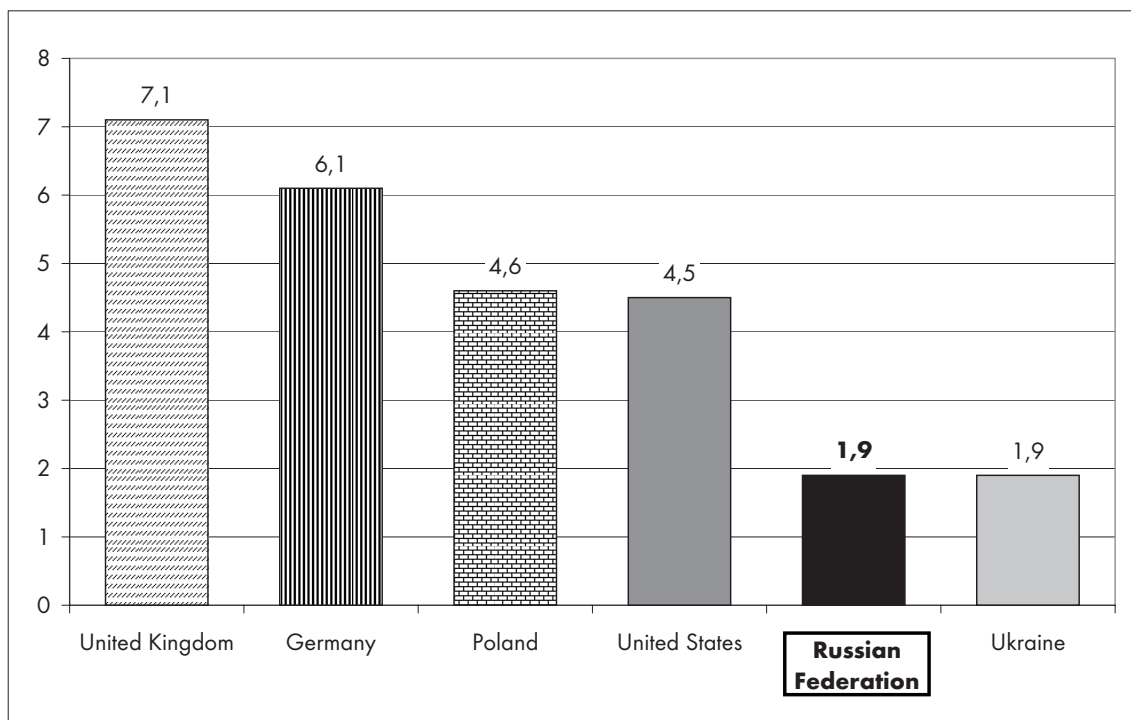
Source: Human Development Report 2006; <http://hdr.undp.org/hdr2006/statistics/indicators/203.html>

Electricity Consumption per Capita (Kilowatt-Hours)



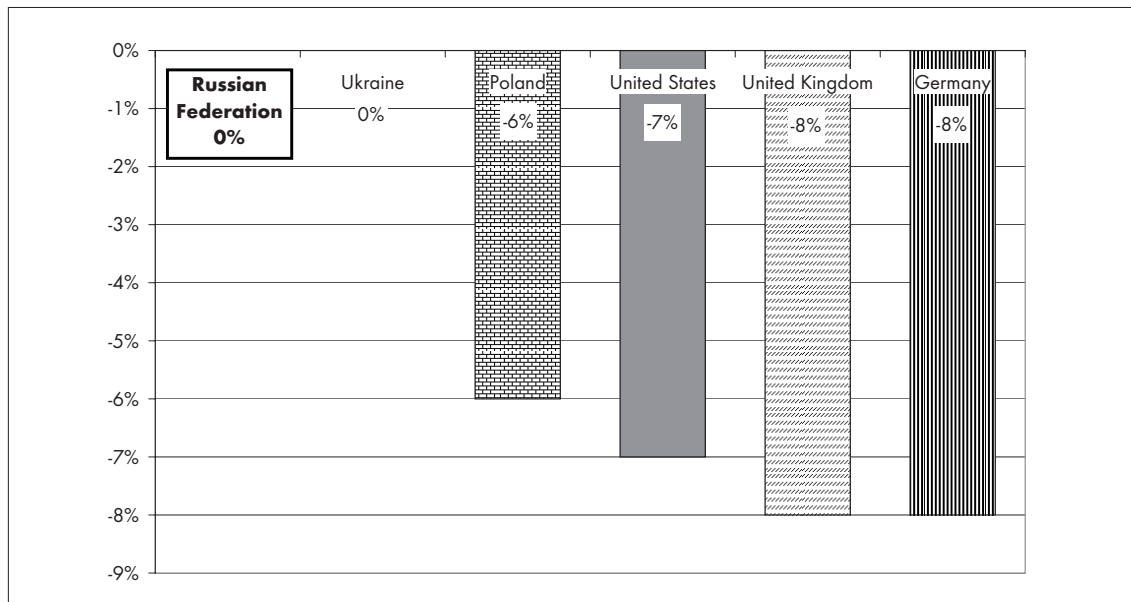
Source: Human Development Report 2006; <http://hdr.undp.org/hdr2006/statistics/indicators/199.html>

GDP per Unit of Energy Use (2000 PPP US\$ per KG of Oil Equivalent)



Source: Human Development Report 2006; <http://hdr.undp.org/hdr2006/statistics/indicators/201.html>

Quantified Emission Limitation or Reduction Commitment (until 2012) (% of base year of period; 1990 for most countries)



Source: United Nations Framework Convention on Climate Change: Kyoto Protocol to the United Nations Framework Convention on Climate Change, http://unfccc.int/essential_background/kyoto_protocol/items/1678.php

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